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MONITORING TIMES

August 1990

Summertime High Band DX by Alan Riagelo

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What's a hobbyist to do? Summer brings dismal DXing and the doctor has told you to stay out of the sun! Just rise above it, bunky, to the relative peace and quiet of the high bands. DX challenges still await you without the static crashes found on crowded lower frequencies.

An "Eagle Eye" on the U.S. Coast Guard by Bill Black

10



Honoring the 200th anniversary of the U.S. Coast Guard, *MT* features the Coast Guard's own "tall ship," the "Eagle," which often makes good-will visits to U.S. coastal cities. Used as a training ship by the Coast Guard, the ship practices the centuries-old art of sailing, but the communication gear is modern. Besides the 200th anniversary, Bill Black advises us of other maritime events this summer which could provide some exciting monitoring.

Monitoring Military Aircraft by Jack Sullivan

16

Eavesdropping on military aircraft is a hobby that has taken off in the last decade. This general introduction by Jack Sullivan provides an overview of the bands and modes used, what you can expect to hear, and the most-used frequencies where you can expect some immediate success. If you haven't tried it before, give it a shot!

A Visit to Radio Finland by Jeff Chanowitz

18

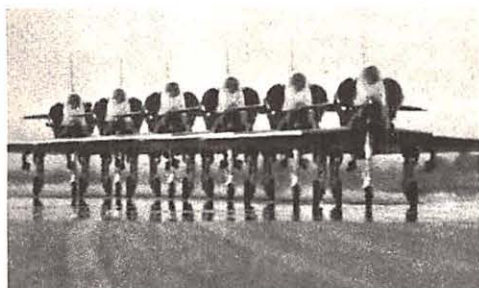
Have you listened to Radio Finland? If you have, you are probably better educated than most on the culture and activities of this Nordic country. A country where "not much bad happens" doesn't attract much media attention; Radio Finland tries to balance that oversight. Finland has had a fight to maintain its own identity and independence from its giant Soviet neighbor, and world opinion counts for a great deal. Listen in to the voice of this spunky nation -- but don't expect a QSL!



ON THE COVER: *Blue Angels eclipse the sun in the Diamond formation.*
(Photo by Steve Douglass)

At the Airshow! by Bob DiCorcia

22



Those U.S. Navy Blue Angels are on the road again with their spine-tingling demonstrations of aeronautical expertise. You can ride in the cockpit with them via radio (the only way to go!) with Bob DiCorcia's guidelines to tell you where to tune.

And more ...

A scanner radio, a tape player, and the Seabrook Power Plant ... To find out what they all have in common, check out the Scanning Report on page 32.

You'll want to make a copy of this one, especially if you're a new utility listener -- Larry Van Horn has made a list of the hottest 125 frequencies (page 28). Try these out if you've been discouraged by your first attempts to monitor two-way communications.

Don't be intimidated by all those RTTY modes, either. You'll find ARQ, TDM and FDM all explained on page 47.

Ed Creem of Middletown, Connecticut, is proud of his community and excited about his station, WCNX. Ed feels very strongly about the role of community radio, and his new directions seem to be working. Maybe more local broadcasters should read the article on page 50!

We told you in our lead feature that summertime is not a total loss for DXing. Go high. Well, Joe Woodlock says you can go low, too, to find signals of value. Don't write-off the dog days (page 54).

You've asked us frequently, "How can I listen to shortwave radio in my car?" Well, Magne finally introduces the Philips DC777 World Band Car Radio on page 86. You still can't DX and drive, but you can enjoy some good listening.

There's lots more hidden in these pages -- especially if you've been intimidated out of building circuit boards, or you've always wanted to build a sloper antenna, or you just can't figure out radio terminology or what the airplane pilots are talking about. It's in the pages of *MT*!



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MONITORING TIMES

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LETTERS

Apparently, we once again tipped the lid on the numbers stations -- those mysterious broadcasts that contain nothing but spoken lists of numbers.

It was back in June that reader Art Loftus wrote, asking for help in identifying a numbers broadcast in a foreign language. The next month, several readers opined that what Mr. Loftus was hearing was a Czech language numbers station.

This month comes a report from a reader who confirms *Monitoring Times'* long-standing hypothesis that numbers broadcasts (in general) are radio transmissions intended to instruct spies in the field.

The reader who provides this information "was once in the intelligence community but is not now" and therefore asks that his name be withheld. Here's what he says.

"Many of the numbers transmissions that you hear are actually practice or dummy transmissions and are used for propagation testing. The operative travels to two or three cities over a period of time and sends a reception report back to headquarters indicating best times and frequencies, noting overall signal quality and presence of interference.

"More than one agent may monitor the same transmission at different locations to determine the best schedule for future messages. These test transmissions account for many of the repeat messages and simulcasts reported by listeners over various periods of time.

"The callsign trinome (the three numbers repeated at the beginning of each transmission) contains the majority of the message. The first two numbers identify the agent and the third is his basic instructions; for example, "240" would be directed to agent 24.

"The third numeral, in this case a zero, indicates a dummy message. Other third numerals indicate (approximately): (1) report to pickup point; (2) read message and follow their instructions; (3) arrange meeting and read message for instructions;

(4) prepare for trip but no instructions; (5) prepare for trip and read message for instructions; (6) meet contact at safe house; (7) caution, prepare to evacuate; (8) evacuate according to set procedures; (9) destroy all and leave immediately the best way.

"The five-digit code groups are done on a trigraph matrix (three-way look-up table) and, whether five straight digits or so-called "3/2" sets, are interpreted the same: one group indicates the line in the decoding book.

"After the header group, either one or two, the first three digits of the next group apply to the matrix, either 3 x 12 or 6 x 6 columns and rows, followed by the last two digits of that group and the first digit of the next group.

Here are some additional insights: "Most of the female-voice German language stations are run not by the East Germans, but by the Hungarian security services.

"The Morse code stations that ended their broadcasts with either three or five cut zeros (long dashes) are KGB and, if coming from the west, originate from the GRU communications facility just outside Havana, Cuba.

"Some of the Polish CW stations sent the groups twice with an 'R' separator after ten groups."

It will be interesting to note what changes -- if any -- accompany the radical political reforms of the European community.

We received an interesting call from an emergency medical technician who was somewhat upset. Apparently, a citizen was having a heart attack and his group responded. One of the victim's relatives, a *Monitoring Times* reader, then charged the EMTs with incompetence when the victim died. The reason for the charge: the EMTs put the paddles of the defibrillator on the wrong side of the patient's chest -- just look here on the front cover of the July *Monitoring Times*.

Take out your copy and look at it. Notice anything? How about the flags on the EMTs' shirts? Yep, they're backwards. And, thus, so is the position of the paddles. The picture was printed backwards, or "flopped" as they say in graphics terms.

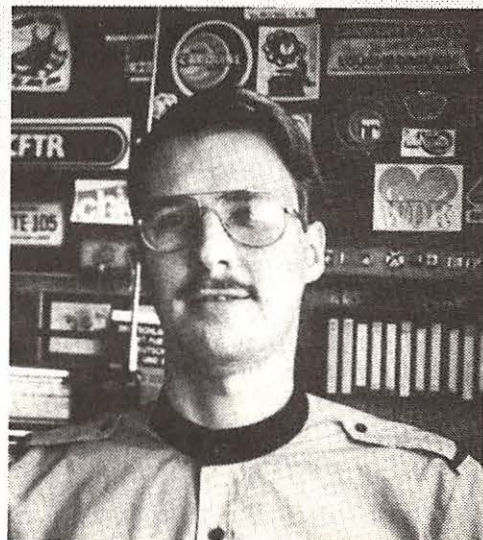
Interestingly, a number of readers contacted us to compliment us on the cover.

An informative letter from Mike O'Brien of Springfield, Missouri, praises Vern Weiss's inspiration to prepare the informative "Shortwave Receiver Buyer's Guide" which appeared in the July issue, but says that there are several errors which he felt really should be corrected:

The R-388 and 51J-3 are the same radio, says Mike, the SX-37 is really S-37, S-42 should be SX-42, S-73 is really SX-73 (and usually made for the military as R-274), and S-88 is actually SX-88.

Mike further feels that the price on the NC-109 and SP-600JX are too high, while the 75A-1, 75A-4, GPR-90 and GPR-92 are substantially underpriced; however, he agrees that prices will reflect what the market will bear. Mike hopes that similar articles will be forthcoming.

What's the mystery surrounding Soviet DXer Igor Sannikov? For this and more "Letters," please turn to page 100.



Direct Satellite Broadcasting

Two Washington-based firms have recently announced their intention to seek FCC permission to broadcast radio programming to the American public via satellite.

According to Peter Dolan, president of Satellite CD Radio Inc., his service will have 100 channels of programs, most of which will be picked up from local stations that want to become "superstations."

New CD Radio receivers for cars are estimated to cost less than \$200.00. Two 6 kW satellites, expected to be built by Ford, General Electric, or Hughes, will transmit the signal. No launch date was announced.

and Richard L. Young (W6UGH) of Los Angeles, California, would "consistently" operate adjacent to the operations of other amateurs, jamming their communications on 40 meters.

Scanner Leads to Boy Bust

Police in Madison, Wisconsin, arrested three juvenile boys on auto theft and burglary charges after being tipped off by a couple who used their scanner to tune in on the boys' cordless phone conversation.

"Hey, Ray, we should be charged with robbery, auto theft, hit and run, gee, everything," said the youths, sounding more like Beaver Cleaver than hardened cons. The caller was apparently referring to the theft of a 1977 Chevy Malibu. Police also suspect the kids were involved in a baseball park concession stand break in which 41 12-packs of beer were stolen.

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More Raids by the FCC Untouchables

The U.S. Federal Communications Commission continued its high-profile campaign against illegal radio operators last month.

The FCC's Chicago Field Office shut down "Channel One CHOG," which called itself "the best in pirate radio." John L. Rosengarten of Chicago, Illinois, was fined \$1,000 for illegally operating on 7415 MHz, a frequency allocated to the international fixed public radio communications service.

Similar action occurred as FCC raiders struck America's heartland with the bust of Eric B. Hultgren's 88.1 FM transmitter in Rockford, Illinois. The station was reportedly used to rebroadcast WBBM-FM in Chicago. Hultgren's fine was \$1,000.

In other action, the FCC fined Sue Swanson of Lago Vista, Texas, \$1,000 for illegal operation on 27970 kHz, confiscated illegal CB linear amplifiers from R.H. Electronics, in Magalia, California, and fined two ham radio operators \$1,000 each for "willfully interfering" with other amateur radio communications.

According to the FCC, Robert N. Frizzell (W6UCB) of Beatty, Oregon,

Radio Free Europe

Official bickering continues over the fate of Radio Free Europe and Radio Liberty, two stations now credited with being major contributors to the budding democracy movement in Eastern Europe.

Says Edward Fuelner, chairman of the U.S. Advisory Commission on Public Diplomacy, "You have to ask yourself, what justification is there for the U.S. government to be competing with 20 or 25 independent Polish broadcast stations."

Overall, most seem to favor allowing the Voice of America to gradually take over the function of RFE/RL.

Malcolm Forbes Jr., however, took strong exception to the proposal saying, "Given that Radio Free Europe enjoys several times the audience of the Voice of America in Eastern and Central Europe, it is premature to call for an end to RFE broadcasts to countries in the region."

Fuelner called Forbes' comments "a cheap shot."

Cellular Phone Tap

Federal officials say that they entered a brave new world when they used a cellular phone tap during the investigation into an Illinois drug ring. According to officials, for the first time they tapped cellular telephones to uncover drug deals, some of which reportedly were conducted from tables at a local bar.

Authorities asked officials at Cellular One to create a device which enabled them to eavesdrop on the calls.

A spokesman for the club, which was not implicated in the drug ring, was not happy with the negative publicity saying, "Some people carry cellular phones in the bar. It isn't against the law to carry one. What is a tavern owner supposed to do, ask someone who comes in for a drink, 'what do you do for a living? Are you a truck driver, a priest, or a cocaine dealer?'"

Radio Tags Trigger Train Identification

Railroad executives think that they've found a reliable way to keep track of their trains. At present, clerks

at the nation's freight yards manually type car identification into computer consoles, producing an error rate of 1 to 3 percent. The result is that freight cars too often end up at the wrong place at the wrong time, delaying shipments and angering shippers.

Railroads are now testing an automated ID system that uses radio devices known as transponders, which are mounted on the side of freight cars. When the transponder is excited by a low frequency radio signal broadcast from a trackside transmitter, it responds by sending out identifying information.

Two railroads are now using the transmitters, Burlington Northern, and Norfolk Southern, on their locomotives.

King Ham

According to an article in the *Bangkok Post*, the world of ham radio is about to have another royal operator. It seems that His Majesty, the King of Thailand, has accepted an advanced class amateur radio license and ham call sign, HS1A, from a representative of the Thai Ministry of Communications.

The King is the first person in Thailand to receive the advanced class amateur radio license since new regulations governing the activity became law. HS1A joins King Hussein, JY1, of Jordan, King Juan Carlos, EAOJC, of Spain and members of the Saudi Arabian Royal Family who are ruling monarchs holding ham licenses.

(Some) Scanners Legal in Florida

A new law would exempt newspaper journalists from a Florida law banning the use of scanners in automobiles. Under current Sunshine State legislation, installing scanners in a motor vehicle or business without a Federal Communications Commission license is a second-degree misdemeanor punishable by up to 60 days in jail and a \$500 fine. An exemption to that law allowed television and radio stations to operate scanners -- but not newspapers.

Signal Skip Saves Five

Five men were rescued from a sinking boat in the Gulf of Mexico after a Coast Guard operator in Maine heard their call for help. Radioman 2nd Class Chris Jenkins was at his station in South Portland, Maine, when he heard the distress call from the 65-foot yacht *Adrian* -- some 1,500 miles away. The boat was on fire and sinking fast when Jenkins returned the call. However, "At that time of night," says Jenkins, "radio signals do strange things."

Unable to contact the vessel, Jenkins handed off the communications to the Coast Guard in Miami, which conducted the rescue. The five men were found in two life rafts and flown to a local hospital where they were reported in good condition.

Jenkins reports that he can often hear radio traffic from as far away as Alaska but cannot hear calls from Massachusetts.



Cross signals Create Mc-Mess at Mass

A mix-up in frequencies on the cordless microphone at Our Lady of Good Counsel Church in Upper Southampton, Pennsylvania, caused

broadcasts from a local McDonald's restaurant to be heard during Mass.

One parishioner said that she thought she was hearing things when, in the middle of the Mass, she heard an order for "a Big Mac, large fries and a chocolate shake."

"It was really loud," the parishioner said. "At first I thought that I was just hungry and imagining it, but then I heard it again."

Says Rev. Gerald Dennis Gill, a priest at the church, "it's sort of funny, but it's also very disrupting when it breaks into the middle of the Mass. Hopefully, we'll have the problem solved soon."

Thanks to: Dave Alpert, New York, New York; Karl Heil, Blue Mounds, Wisconsin; Ed Hess, East Merrimack, New York; Steve Marshall, Arlington, Virginia; Bob Parnass, Naperville, Illinois; Stu Phillips, Seminole, Oklahoma; Sherwood Communications Associates, Southampton, Pennsylvania; *W5YI Report*

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SUMMERTIME HIGH BAND DX

by Alan Riagelo

What? You say summer's got you down? The noise coming out of your favorite DX hunting grounds has you so jumpy you went out and kicked in the garage door? Now you've unplugged everything and gone to the beach until sunset on Labor Day? Has the static got you down, bunky?

Well, throw your beach towel in the back seat and head home. All is not lost. There's still a bunch of good stuff to go after up on the higher bands where you can escape the static (okay -- most of it). Not only is it considerably quieter but the great propagation going on now means it's a wide open game at just about any hour of the day or night.

Sure, it's no great trick to hear a lot of stuff on 9 MHz and up, especially these days when 16 meters at 0400 is as likely to produce Radio Japan (direct) as it is Radio Netherlands. But you're a true blue DXer, I'll bet, and you're looking more for stuff you can work up a sweat with.

Okay. We can do that. Here are some ideas on out of the ordinary and/or pretty tough and/or otherwise interesting things you can set your sights on until the all clear sounds this fall and it's safe to go back down to 90 and 60.

Thirty-one meters is a mix of high and low ground and can be a mean place in the daytime. Try the Voice of Ethiopia on 9560 between 1200-1800 in English, Amharic and French at various times. If you're a country-chaser, you'll want to have a few shots at Radio Medi-Un, based in Tangier, Morocco, but with its transmitter in Nador, in what used to be Spanish Morocco (and still counts as that on some country lists). It'll be in Arabic or French to closing at 2100.

The Portuguese Catholic station, Radio Renascensa, is on in Portuguese to Europe at 0955-1100, also on 9575, but it's easier on 9600 at 0015-0115 to South America, also in Portuguese.



There's more than one way to work up a sweat this summer. DX challenges still abound even through the summer static.

One of the few Indonesian regional stations to use a high band frequency is RRI-Samarinda on 9614. This one is vary occasionally noted around local dawn (yours) in Indonesian and scheduled to 1600.

A neat African target is Emissora Provincial de Sofala at Beira, Mozambique, using 9637. On rare occasions this one does pop through at its 0430 sign on, using Portuguese and Swahili.

"31" holds some interesting Latins. La Q Mexicana is on 9680 -- sometimes. Broadcasts are quite irregular but check anyway. If it's on, it's usually heard. Mornings and evenings are good times to try. Another occasional Mexican is XEWW -- La Voz de la America Latina which relays

XEW mediumwave but, again, operates only now and then. 15160 should produce this one if it's on. It's scheduled between 1200 and 0600.

For the past two or three summers there've been unusual loggings of a rare Bolivian -- Radio del Plata on variable 9715. Unusual especially because of the hour -- would you believe around 1700? This one runs in Spanish until closing around 1800.

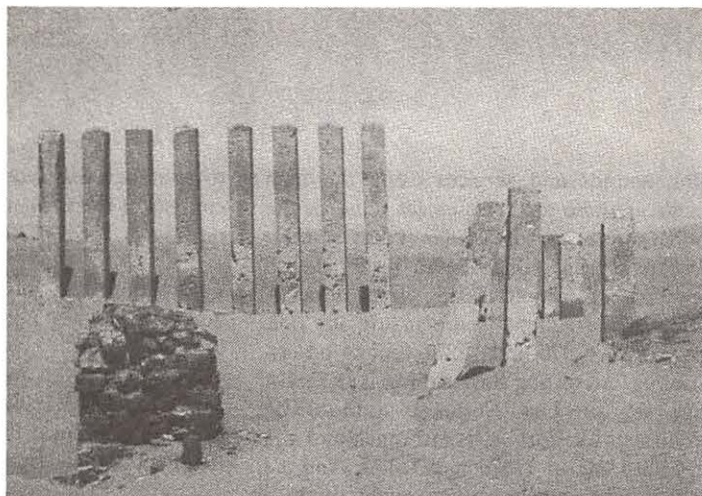
Summer nights often present Radio San'a from the Yemen Arabic Republic with an 0300 sign on on 9779, all in Arabic. And often with very good signals, too. The other Yemen, the People's Democratic Republic of, also has had an 0300 sign on (and runs to 2100) up on 11700 and can be a very good summer performer. As these two mysterious countries begin the process of unification, it is not know if both stations will remain active (as have the stations from the two Germany's, for example) or if they will also merge. You could be the first to know!

One of the rare clandestine stations is Radio Iran Toilers, run by the Iranian Tudeh (read "communist") party. You can sometimes catch this one with its 0230 sign on in Farsi on 10870.



Only a few Uruguayan stations remain active, but Radio Oriental or Radio el Espectador are potential catches.

Yemen can be a very good summer performer



Radio Tanzania-Zanzibar's jump to higher power (50 kW) a few years ago helps reception some, but it's still no snap. Check 11734 for Swahili broadcasts which run to a variable 1830 sign off.

One of the rarer South American countries represented on SWBC is Uruguay. Summer is a good time to catch a couple of the very few active Uruguayan stations. Radio Oriental on 11735 runs till 0100 and Radio el Espectador on 11835 to 0300, both all Spanish.

The long silent Argentine station Radio Belgrano began again a few months back but with a limited and unhelpful schedule. It operates between 1200 and 2000 on 11781. Chances are you'll spot a het here most days but a usable signal only infrequently, if at all. Still another good South American target is Radio Encarnacion, Paraguay, on 11945 which is scheduled to 0300. It's been heard a few times over the last year or so since it was reactivated.

An always good target is the Voice of the People of Cambodia on 11938 (bless those split frequencies). They air a 15minute English segment at 1200. Course if you really want a challenge, you could forego that and try the other English segment -- at 0000. Another Asian which has English at 1200 is Radio Ulaanbaator on 12025. Good, clear reception of this one might be an occasion to roll tape. The program content could be especially interesting as Mongolia moves away from communism.

"Theyyyre back." The word is that Radiodiffusion Television Congolaise has returned and may have opened up on 19 meters. Check their former frequency of 15190 just in case they've returned to it. Should be all French and daytimes should be the best time to nose around for this one.

On a really hot day maybe you could cool off by hearing Iceland. The Icelandic State Broadcasting Service offers you several opportunities, including transmissions of




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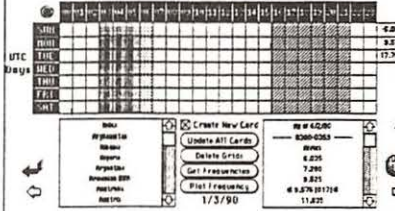
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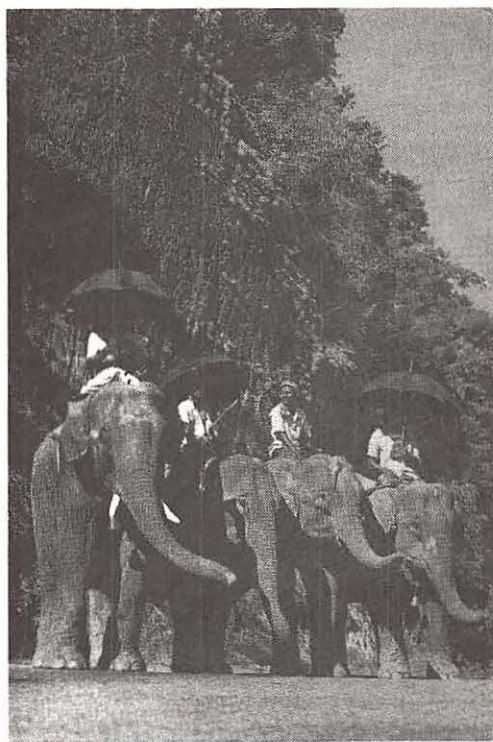
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You may find Radio Bangladesh on 17850 at 1300.

around 30-35 minutes at 1410, 1855, 1935 and 2300 on 13830 and 13855. Also 1215-1245 on 13861, 15570 and 15767. All Icelandic.

Always a fun one is Radio Kiribati, often caught in the summer months at its 0600 sign on (or just prior). It's on 14918 USB. And some of it's in English.

There are nearly as many Soviet stations,

sites, sounds and services using the high bands as there are frequencies. One of the more interesting is **Radio Tikhy Okean** (Pacific Ocean) which has a brief English newscast at around 0855 some days. A number of frequencies are in use for this. Try 11915, 12070 and 15570, among others. Another interesting Soviet thing is the relay they do of **Lao National Radio**. The broadcast, for Europe, is in French and airs at 1100-1130 on 11870 and 15190. And it's not as easy to hear as you might think.

More interesting high band Asian targets include the **Sri Lankan Broadcasting Corporation** with an 0030 sign on on 15425. Good prop can bring this one in at surprisingly good levels at times. **Radio Veritas Asia**, in the Philippines, should show up on 15445 between 1300-1600 (with some brief breaks in transmissions) in various Asian languages. Another opportunity is between 0100-0300, again with some breaks, on 17795. And you may find radio Bangladesh on 17850 in English at 1300.

Summer's also a good time to catch the Argentine Antarctic station, **Radio Nacional Archangel**, on 15476. It's in Spanish, with a scheduled 0030 sign off, though it may close as early as 2330.

Another of the irregular Latins is **Radio Nacional de Colombia**, which sometimes fires up in upper sideband on 17715. It's easy

to spot because most of the programming consists of classical music. At least you won't mistake it for WRNO.

So there are a few specifics to get you going. This is also a good time of year to add to your Brazilian log if you haven't yet cleaned up on the many which operate on 9, 11, 15 and 17 MHz. Late afternoon and early evening your local time, can bring in some excellent signals from these stations.

If you are into chasing Soviet sites, you'll find the higher bands are full of these signals, though the season of the year doesn't make it any easier to figure out just what's coming from where.

It's also fun to check the 11 meter band occasionally and try and spot the highest frequency in use. Bet there's one above 26 MHz.

Okay, okay. You can spend some time at the beach and the ballpark, but don't neglect the ol' shortwave set just because it's summer and you can't handle the low band static. There's a lot going on on the upstairs bands that you may miss out on otherwise.

mt

Thanks to some intrepid DXers for the QSLs illustrating this article: Nicholas Grace of Harvard, MA; Ray Labrie of Portsmouth, NH; Richard Lane from Dawson, IL; and Don Moore of Big Rapids, MI.



The Icelandic State Broadcasting Service might bring some cool relief, but that's all -- unless you understand Icelandic.



Sri Lankan Broadcasting is an interesting high band Asian target.

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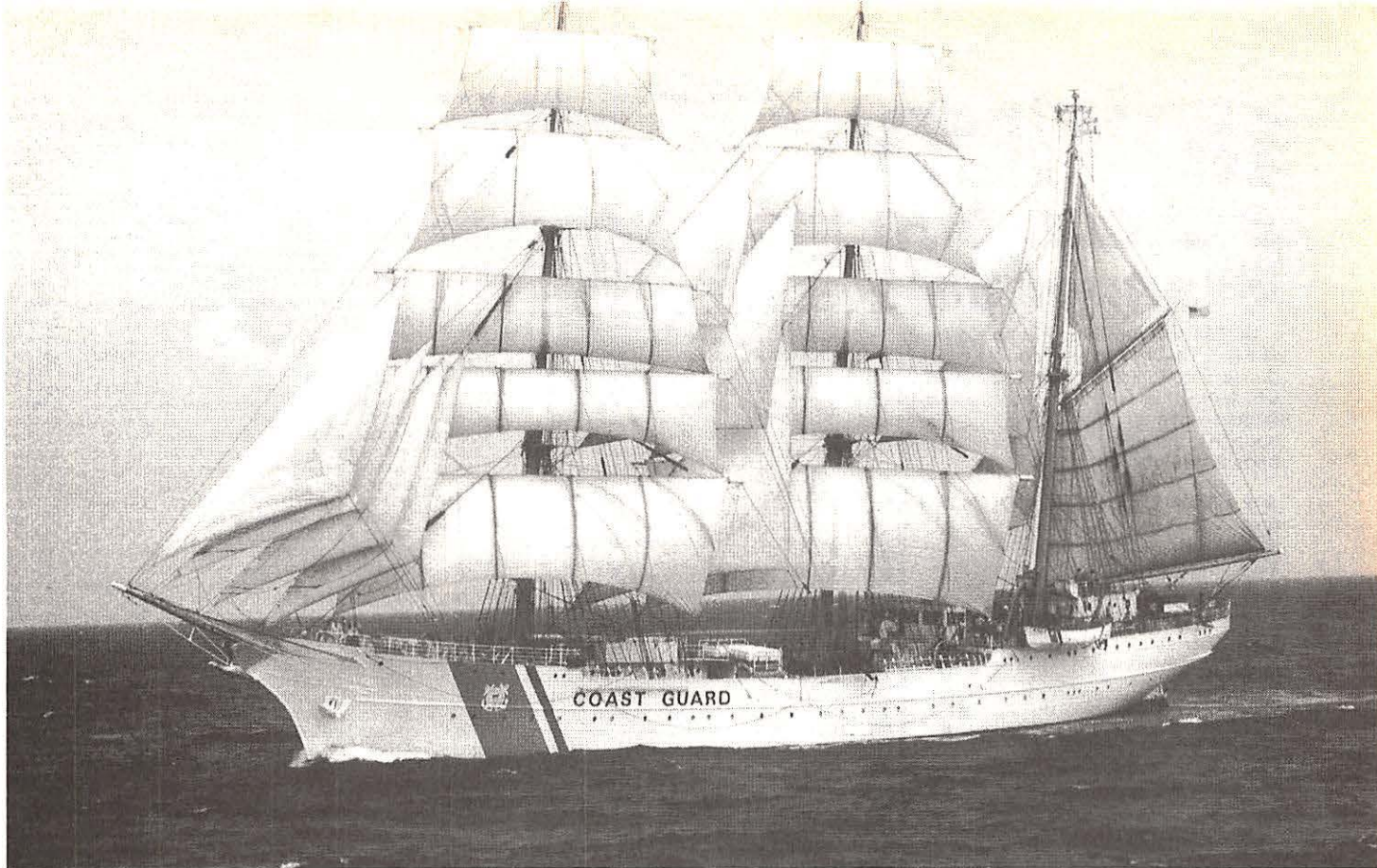


Photo courtesy US Coast Guard

Keeping an "Eagle" Eye on the U.S. Coast Guard

Story and photos by Bill Black

This month the U.S. Coast Guard is celebrating its 200th anniversary. While you and lots of other SWLs may be familiar with the service's radio communications, there is at least one other dimension you may not know about: a vessel that uses 20th century electronic equipment along with the traditional technology of sails. Come visit the radio shack of the U.S. Coast Guard sail training barque "Eagle."

The U. S. Coast Guard can provide some of the most intriguing listening available on shortwave radio, ranging from rescuing vessels in distress to chasing drug smugglers. To aid in those missions, Coast Guard ships, aircraft, and shore stations have a full range of modern electronic equipment. One Coast Guard vessel, however, combines its up-

to-date radio gear with a centuries-old technology: sails.

That ship is the U.S. Coast Guard "Eagle," a floating academy for cadets and new officers. The vessel has an overall length of 295 feet, and, at its widest point, a beam of 39 feet. Its three masts reach more than 130 feet into the air and are rigged with sails that have a total area of more than 20,000 square feet. Normally, the crew consists of some 175 cadets and instructors from the Coast Guard Academy in New London, Connecticut.

The German Navy constructed the ship in 1936 to serve as a training school for its cadets as that nation built up its military before World War II. After that conflict, the United States took the vessel as a war prize, renamed it, and commissioned it into the U.S. Coast Guard in 1946.

While the "Eagle" may look like something out of the last century, its radio room is filled with equipment very similar to what you would find on many other Coast Guard vessels. These include two 100-watt

HF transmitters, a 1000-watt linear amplifier, and three HF receivers. There are also other transmitter and receiver units used for the marine frequencies in the 400-500 kHz range. One special "auto-alarm" receiver is tuned just to the marine distress frequency of 500 kHz. The vessel is equipped with VHF transceivers, but they are used by other officers, instead of the ship's radiomen.



The Coast Guard "Eagle" often makes good-will visits to U.S. cities during the summer.



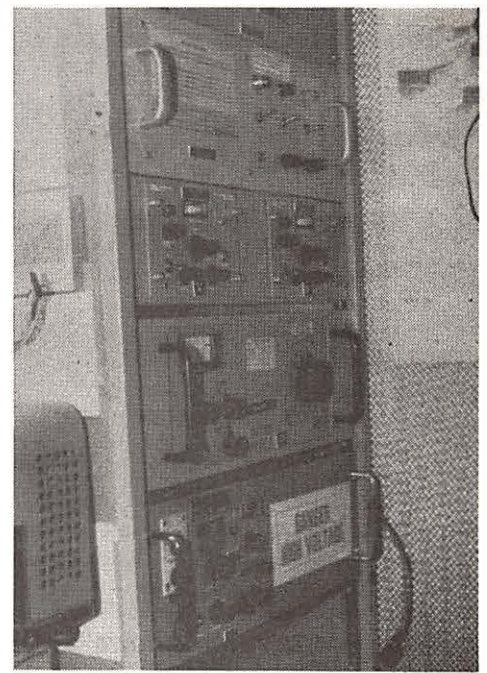
Most of the radio traffic to and from the "Eagle" is done via RTTY, but CW and SSB are also used, as radioman Anthony McCullough demonstrates.

The radioman can select from five antennas, one whip and four long wires ranging from 100 to 150 feet in length.

While the vessel does use SSB voice comms at times, the bulk of the official traffic is sent and received via RTTY. The ship's current radioman, Anthony McCullough, also

enjoys using CW. "It's my personal favorite," he says, but admits it isn't as efficient as RTTY. "The traffic load is too great to rely on Morse code," he reports. "At 40 words per minute, I'd be in here (in the radio room) all day."

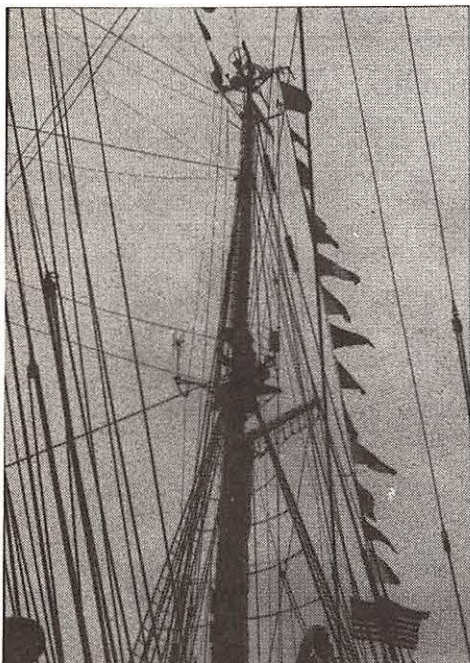
Because the "Eagle" does not have law



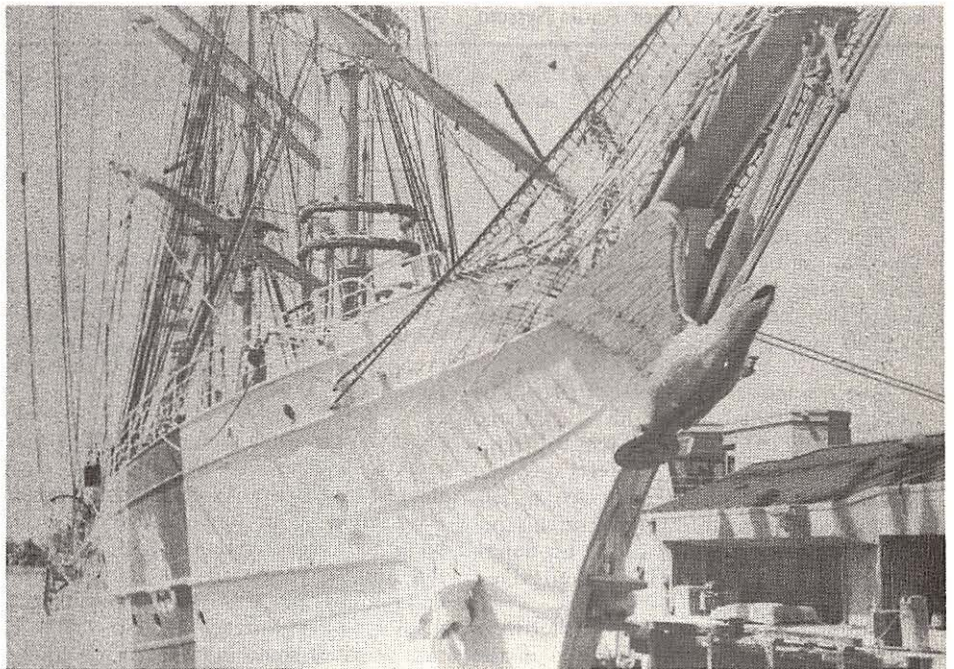
The Eagle has units for the 400-500 kHz marine bands, plus a special "auto-alarm" receiver for the 500 kHz marine distress frequency.

enforcement duties like other Coast Guard ships, none of the messages to and from the vessel are classified.

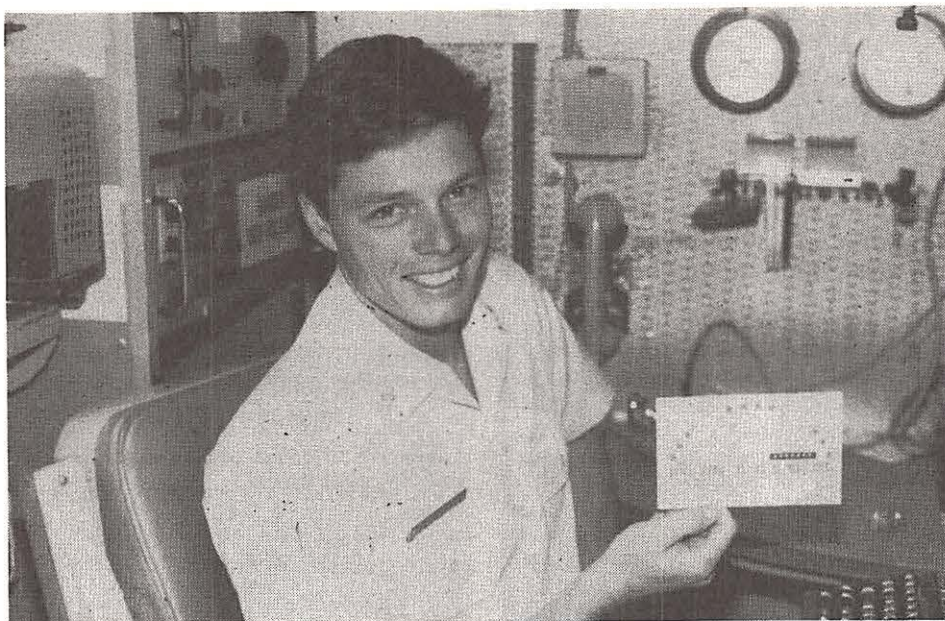
McCullough has been in the Coast Guard for seven years. Like the other radiomen that have served on the "Eagle," he will be on the



The long wire antennas go up through the masts and through the riggings.



The Coast Guard "Eagle" was constructed in Germany in 1936 for that country's Navy. It was taken by the U.S. as a war prize and renamed in 1946.



Anthony McCullough shows a QSL card he received from a MARS station.

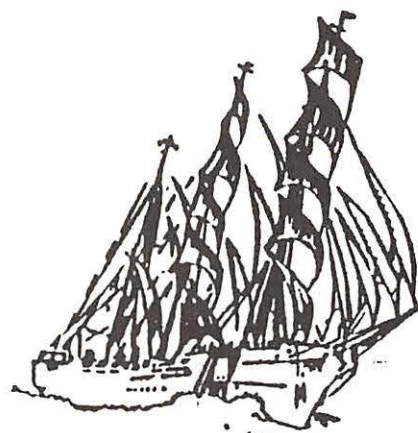
ship for less than a year, and then will rotate to another assignment. This is McCullough's first day at sea. Before serving on the "Eagle," he was stationed at Coast Guard shore facilities in San Diego and on Guam.

On the "Eagle" McCullough must stand watch in the radio room from 8 a.m. to noon local time, any two hours between 6 p.m. and 10 p.m. and any other two hours of his choice. He handles routine traffic in the mornings and the evenings. When he is not tied up with that, he often contacts ham radio operators through the Military Affiliate Radio System

(MARS) to carry telephone calls from crew members to their relatives and friends. "That makes me a popular man," McCullough comments.

When he is on the MARS frequencies, McCullough uses the call sign NNN0NCJ. For other voice traffic he uses "Eagle." On CW and RTTY, it is NRCB.

The "Eagle" generally travels away from its home port of New London only during the summer months. It has already been to a number of cities on the east coast this year.



**USCG BARQUE EAGLE WIX-327
BICENTENNIAL CRUISE 1990**

**COMMANDING OFFICER
USCG Barque EAGLE (WIX 327)
FPO New York, NY 09568-3906**

The "Eagle's" seal commemorating the Coast Guard's 200th anniversary, and the ship's mailing address.

Visits scheduled for this month are: August 3-6, Fall River, Massachusetts; August 9-11, Newport, Rhode Island; and August 15-17, Portsmouth, New Hampshire. The "Eagle" will return to New London on August 21. The best time to catch the ship on shortwave will be while it is sailing between those sites. No schedule has been set yet for 1991.

SAIL ON --

More Sailing Vessels to Hear

Big Ones ...

The "Eagle" is far from the only sailing ship that can be heard on shortwave. While some are large training vessels like the Coast Guard ship, others are much smaller ones, handled by a single person.

One foreign training vessel that will be visiting the United States this August and September is the "Druzhba," which is from the Soviet Union. It is 356 feet long and carries more than 30,000 square feet of sail. On a goodwill tour to this country, the ship will have 60 Soviet naval cadets on board, along with 40 others from the United States.

The best times to catch it on shortwave will likely be just before it arrives in the United States, and while it is sailing between cities. It will be visiting Baltimore, August 4-10; New York City, August 14-20; Buzzards Bay, Massachusetts, August 25-30; and

Castine, Maine, September 2-6.

To hear the "Druzhba," try listening to the ship to shore duplex voice channels in the 4, 8, 12, 16 and 22 MHz bands. If you hear the vessel, send your QSL report to the ship via one of the tour's coordinating groups, Ocean Voyages, 1709 Brideway, Sausalito, CA 94965.

If you get really hooked on DXing these large sailing vessels, a group that might interest you is the American Sail Training Association. The organization has just published a new edition of its directory of sail training vessels. It has comprehensive descriptions of U.S. ships, including a mailing address for each of them. The guide also provides some information on foreign vessels as well, but without a contact address.

In total, there is data on over 200 U.S. and foreign sailing ships in the new guide.

ASTA also puts out a quarterly newsletter with information on major upcoming sail events. You can reach the group at P.O. Box 1459, Newport, RI 02840, 401-846-1775.

To ask for mailing addresses of foreign sailing vessels you might hear, ASTA officials suggest you write to an international group. It is the Sail Training Association, 5 Mumby Road, Gosport, Hants, P.O. 12 1AA, United Kingdom

One of the most important sailing events now planned will be held in 1992, in conjunction with the 500th anniversary of Columbus' discovery of the New World. A number of sail training vessels will be visiting the U.S. that year. To find out more about that, keep an eye on articles likely to come out in major sailing magazines late next year or early in 1992. Copies of the magazines should be for sale at a local news stand or available free at a public library.

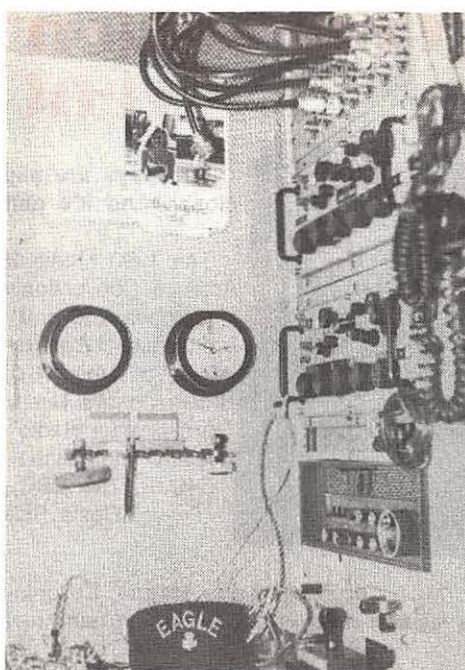


The small desk in the radio room holds the Morse key; the RTTY keyboard is to the right.

For each of its voyages, the "Eagle" is assigned one or more Coast Guard shore stations with which to stay in contact for routine traffic. Most of those communications will be on the duplex Coast Guard frequencies in the 4, 6, 8 and 12 MHz bands.

The MARS frequencies are the same ones used by the U.S. Navy and Marines. Many of those channels are located just outside the ham bands. One frequency McCullough has used in the past is 13974 kHz.

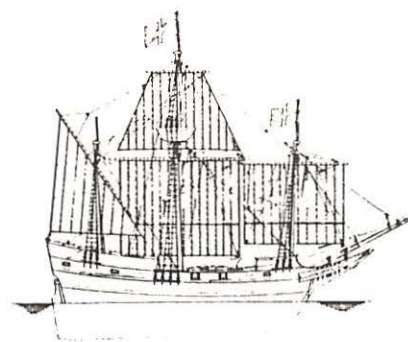
While the "Eagle" handles most of its radio traffic on shortwave, at times the ship has utilized some very unusual VHF frequencies - the cellular phone channels. In recent months, there have been a few occasions when solar flares have knocked out HF communications, and the ship has been close enough to shore to use its cellular phone equipment.



The Eagle's three HF receivers in racks

Regardless of the frequency on which you hear the "Eagle," McCullough and past radio operators have made it a practice to respond to all reception reports. Send yours to: USCG Barque Eagle (WIX 327), FPO New York, NY 09568-3906. In reply, you're likely to receive a card stamped with a special commemorative seal in honor of the Coast Guard's 200th anniversary and one of the souvenir "coins" given to tourists who visit the ship.

mt



18 Nov 1985

Dear Bill -

Thanks for the SWL card! That's the first one I've received. Most of our contacts were via HAM Radio. My call is W4/CAR. However at times we need the Marine SSB.

This is a verification of your reception on 20 Oct. 1985 at 1134Z (1554Z) on 8198-1/8722.0 KHz - A3, XCVR 100 W Icom SSB Ant. - Loop 73
SAILING VESSEL "Godspeed" W4G-7865 Neil

QSL note received from the "Godspeed II," a recreation of the ship that brought English settlers to Jamestown, Virginia.

-- And Little Ones, Too

While it can be intriguing to hear large sailing vessels with a crew of a hundred or more, the action can be just as fascinating on the opposite end of the scale. One event you may want to tune in on begins September 15. It is the BOC Challenge, a round-the-world race by yachts -- each of them sailed by a single person.

Race organizers expect there will be some 30 boats competing. All the vessels must carry shortwave radio equipment for the HF maritime frequencies, the ham bands or both.

The race will be run in four segments. The first will be from Newport, Rhode Island, to Capetown, South Africa. From there, the ships will leave on November 24 headed for Australia. The next leg is from Sydney to Punta del Este, Uruguay, starting February 3, 1991. The trip back to Newport will begin at the end of next April.

Many of the details concerning radio frequencies and schedules have not been released yet. However, for much, if not all, of the race, Ft. Lauderdale shore station WOM will be in daily contact with the boats. At 1600 UTC each day, WOM will broadcast position reports and traffic lists for the vessels.

There are several U.S. private shore stations that have been involved with other yacht races that you might listen for during the BOC race. They are KWS578, WSY943 and KXE221. Keep watch on the SSB simplex frequencies of 16593.3, 12435.4, 6521.9 and 4419.4 kHz. While in the South Atlantic and the Pacific, the competitors may also contact ship-to-shore stations in South Africa and Australia, as well as ham operators in those countries and in South America.

The racers will also have daily "chat"

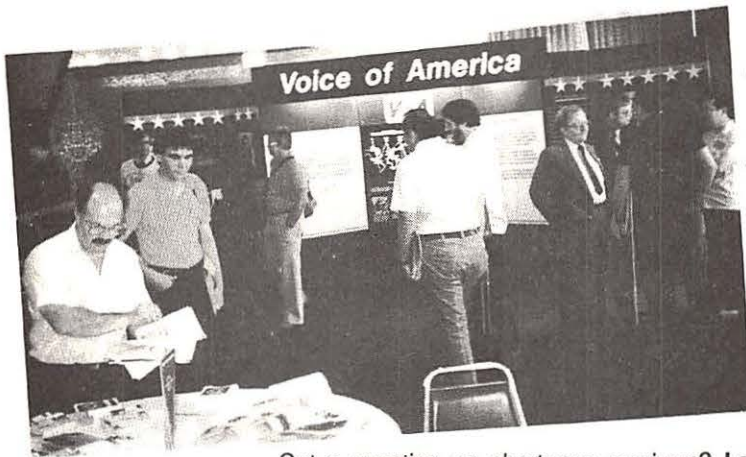
hours to speak with each other. Try checking the maritime SSB simplex voice channels for that. No schedule for those sessions has been announced.

Will the race be worth tuning in? If the spectacle of persons pitting themselves single-handedly against the sea isn't enough for you, keep in mind the challenges the racers may face, and you may be able to hear.

During the first BOC race in 1983, ham radio operators in the United States, New Zealand, Tahiti and other countries worked together over a two-day period to direct one of the yachts to the location of the sinking vessel of another racer. That successful rescue by Englishman Richard Broadhead led to his being named British Yachtman of the Year.

-- Bill Black

The 1990 Monitoring Times Convention is the radio event of the year!



The days are slipping away. It's getting closer and closer. And it's getting bigger and bigger!

The 1990 Monitoring Times/International Radio Club of America Convention is waiting for you, October 5, 6 and 7, in Knoxville, Tennessee. In the broadcaster's category, the list of names is almost endless: Voice of America Director, **Richard Carlson**. Radio Canada International's **Ian McFarland**. **Al Weiner**, formerly of offshore broadcaster Radio New York International. **Jeff White**, Radio Miami International (formerly Radio Earth). Representatives from **HCJB**. The **BBC**, **Radio Finland**. **James Latham** of Radio For Peace, Costa Rica. And more!

Got a question on shortwave receivers? **Larry Magne**, Editor-in-Chief of Passport to World Band Radio and MT's own receiver review man, will be on hand to answer your questions.

Have a chance to meet Popular Communication's shortwave columnist **Gerry Dexter**, who will be giving a talk on how to increase your QSL totals.

Join the gang from NASWA as **Bob Brown** and **Harold "Dr. DX" Cones** give a talk on the finer points of the hobby. And find out about the European club scene from the EDXC's **Michael Murry**.

Interested in old radios? The **Antique Wireless Association** will have a booth. Like to see the actual communications gear worn by the **Blue Angels** as they fly? Visit the booth of **Hunterdon Aero Publishers**, the people who produce the Directory of North American Military Aviation Communications.

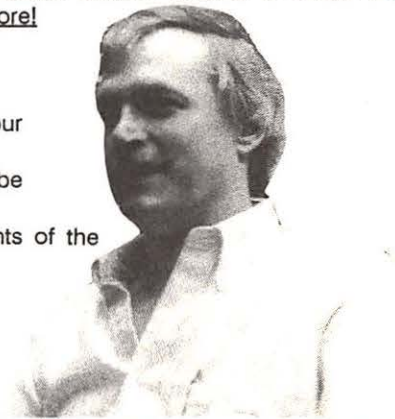
Aero monitors who arrive early on Friday are invited to take a tour of the Knoxville control tower with **Jean Baker**. Broadcast band DXers who choose to stay late can join IRCA DXers for a **Sunday night DXpedition** at Look Rock, Tennessee. Bring your rig make your own arrangements, and get in on the fun.

During the convention, you'll have the chance to tour Knoxville's **Emergency Management Agency/Enhanced 911 Center**. As you wait for that, be sure to see their emergency response vehicle, which will be displayed at the hotel.

Doug Demaw, the man who challenges MT readers with interesting, useful electronics projects each month, will be on hand to lend a hand. He'll also give aspiring experimenter's some tips on project building.

Interested in buffing up your knowledge of some area of monitoring? Be sure to take in **Skip Arey's "Basic Guide to Radio"** seminar. Get up early on Saturday and walk the Radio Amateur Club of Knoxville's **flea market** -- maybe bring home the radio bargain of the year.

Call the Hyatt Regency in Knoxville to book your room today. Mention the Monitoring Times/IRCA Convention for a special room rate of \$62.00 a night. You can stuff up to 10 people in to a room if you wish. Extra roll-away beds are available or bring your sleeping bags. We also have a special discount with Delta Airlines for convention travel. Just mention discount number "J20088." Be sure to check supersaver fares and other bargain rates with your travel agent and make your best deal. **Hyatt Regency 1-800-233-1234 and Delta Airlines 1-800-221-1212**



The Monitoring Times Radio Convention

It's the Radio Event of the Year!

- ☐ Sign me up! Enclosed is my \$30 registration fee. I'll see you in Knoxville!
- ☐ Enclosed as well is my \$18.40 banquet payment (includes Tennessee tax and gratuity)

Name _____

Address _____

City _____ State/Prov _____ Zip _____

Phone (Optional) _____

Make your check payable to Monitoring Times and send it to P.O. Box 98, Brasstown, NC 28902.

Convention Schedule

FRIDAY, OCTOBER 5

(Available for Early Arrivals)

Tour of Control Tower at Knoxville's McGhee-Tyson Airport

Hospitality Suite
Opens at noon (24 hours)

Convention Ham Radio Station
Opens

530 kHz Convention Radio Station
Opens

Exhibitions Set Up and Open

Monitoring Times Staff Meeting
(6:00 p.m.)

SATURDAY, OCTOBER 6

Flea Market Opens (8:00 a.m.)
Radio Amateur Club of Knoxville
(Parking Lot)

Receiver and Scanner Lab Opens
Bring Your Receiver for a Check-Up!

Official Welcome (10:00 a.m.)
Bob Grove
Convention Host and
Publisher of Monitoring Times

**Tours of Knoxville/Knox County
Emergency Management Agency**
begin

Emergency Response Vehicle
On display at hotel

Tours to Local Broadcast Stations
Begin

Pirate Radio
Alan Weiner
Radio New York International

Choosing a Scanner
Bob Grove
Monitoring Times

Gene Hughes
Communications Systems
Police Call

**Video Tour of the Antique Wireless
Museum**
Larry Flegler

Antennas: Basics for Better Listening
Clem Small
Monitoring Times

Electronic Surveillance
Howard Perry
Advanced Electronic Technology

HCJB Presentation

Shortwave Open Forum
Ian McFarland
Radio Canada International

Scanner Monitoring
Bob Kay
Monitoring Times

Space Communications
Ken Reitz
Monitoring Times

Digital Modes: RTTY and FAX
Jack Albert
Monitoring Times

Accessories: Choosing and Using
Bob Grove
Grove Enterprises

Cellular Telephones
Thomas Bernie
Cellular Security Group

Curing Interference
Bob Grove

Home Brew: Making It Yourself
Doug Demaw
Monitoring Times

Planely Speaking
(Aero Communications)
Jean Baker
Monitoring Times

QSLing: The Right Stuff
Gerry Dexter
Popular Communications

**Uncle Skip's
Basic Guide to Radio**
T.J. Arey
Monitoring Times

**Shortwave DXing:
Tips and Techniques**
Bob Brown/Harold "Dr. DX" Cones"
NASWA

Shortwave: From the Inside
Ian McFarland
Radio Canada International

Utility Overview
Larry Van Horn
Monitoring Times

Below 500 kHz
Low Frequency Monitoring
Joe Woodlock

**Scanner Modifications:
Tips and Techniques**
Panel Discussion
Bob Grove, moderator

Military Aero Monitoring
Panel Discussion
Larry Van Horn, Steve Douglas,
Jack Sullivan

Larry Magne

Passport to World Band Radio
Shortwave Receiver Review

Radio for Peace
Costa Rica
James Latham

AM/FM Broadcast DXing
Karl Zuk, IRCA
Monitoring Times

The Radio Spectrum
Bob Grove

Social Hour

**Awards Presentation
Banquet**
Keynote Address by
Richard Carlson, Director
Voice of America

Bob Kay's Bug Hunt
(Bring Your Handheld Scanners!)

SUNDAY, OCTOBER 7

Official Convention Close
3:00 p.m.

IRCA Annual Meeting
7:00 p.m.

IRCA DXpedition
8:00 p.m.

EXHIBITORS

Radio Shack
Voice of America
Universal Radio
Systems and Software
Advanced Electronic Technologies
Opto Electronics
Cellular Security Group
KIWI Electronics
Hunterdon Aero Publishers
Gilfer Shortwave
Ten Tec
Somerset Electronics
TRS Consultants
Grove Enterprises
DX Radio Supply
North American Shortwave
Association (NASWA)
International Radio Club of America
(IRCA)
Radio Canada International
HCJB
Northeast Scanning News

An Introduction to Monitoring Military Aircraft

by Jack Sullivan

President

Hunterdon Aero Publishers

The inviting aroma of hamburgers grilling in the backyard crowns a peaceful summer afternoon. Suddenly the bliss is shattered by an ear-splitting roar as a jet thunders over the treetops! Moments later, another fighter sears the air in hot pursuit.

"Sunshine one-four alpha; break off! -- Break off!" blares the speaker on a nearby scanner.

Listening to military aircraft communications is one of the newest - and hottest -- areas of radio monitoring. While government surplus receivers capable of tuning in at least some of the military aviation bands have been around for many years, it wasn't until the early 1980s that scanner manufacturers got into the act. Thus, despite the potential for excitement, military aero monitoring languished.

Today, all of that is different and whether you enjoy listening to the action as fighters screech into the sky to intercept lumbering Soviet Bear reconnaissance bombers off the coast or the fast-flying action of simulated war games, military aero monitoring is within the reach of just about everyone.

Military aircraft operate in a number of different frequency bands, each with its own unique characteristics. These different bands can be summarized as follows:

HF	2- 30	MHz (single sideband and other modes)
VHF-LOW	30- 88	MHz (mediumband FM)
VHF AERO	118-151.2	MHz (AM and some narrowband FM)
VHF-HIGH	151.2-174	MHz (narrowband FM)
UHF-AM	225-400	MHz (AM and some wideband FM)
UHF-FM	406-420	MHz (narrowband FM)

HF is used primarily for long-distance communications -- distances usually greater than 100 miles.

VHF-LOW is used for short-distance communications, usually under 100 miles. This band, codenamed FOX MIKE, is also used by military field radios and other tactical communications equipment and therefore finds its greatest use in air-to-surface liaison communications.

This band also contains a tremendous number of military and government transmitters *not* connected with aircraft operations, as well as a great number of foreign stations. The exclusive U.S. government band segments of the 30 to 88 MHz VHF-LOW band are:

30.01 - 30.55 MHz
32.01 - 32.99 MHz
34.01 - 34.99 MHz
36.01 - 36.99 MHz



38.27 - 38.99 MHz
40.01 - 41.99 MHz
46.63 - 46.99 MHz
49.61 - 49.99 MHz

Military aircraft operations can be heard anywhere between 30 and 88 MHz; however, most of the activity is concentrated in these segments.

The VHF-LOW band is also of interest to the monitor because of the "skip" phenomenon. At certain times, signals in the VHF-LOW band travel thousands of miles from their intended target, giving monitors the chance to share in the excitement of military communications from all over the country and foreign countries as well.

VHF-AERO is the common aeronautical band used by both military and civilian aircraft. It is code-named VICTOR and the distances it covers are usually less than 100 miles.

VHF-HIGH is primarily used for air-to-surface liaison with non-aviation systems using radio equipment designed for the band, such as VHF marine equipment found on most boats and ships, including Coast Guard and Navy vessels. Distances covered by VHF-HIGH communications are, like HF-AERO, usually less than 100 miles.

UHF-AM is the primary military aircraft band and is code-named UNIFORM. Distances covered are less than 100 miles.

UHF-FM is used only by certain special-purpose Federal government radio systems that require air-to-ground communications links of high reliability and privacy, and for military satellite relays.

There are now a number of full-feature programmable scanners available that receive military aircraft frequency bands. These include the ICOM R7000, Realistic PRO2006, AOR AR2002, AR1000 and

AR3000. These scanners and recommended accessories are available from a number of *Monitoring Times* advertisers.

All of these radios come with a telescopic whip antenna that is ideal for indoor use; however, it's important to realize that if that's the only antenna you use, you'll probably be limiting yourself to hearing only the strong local signals. Of course, this may be entirely satisfactory if you live close to an active military installation.

A good set-up, on the other hand, will be able to pull in ground stations 50 or 60 miles away and in-flight aircraft from 200 to 300 miles away. That translates into a coverage of roughly a quarter million square miles!

Take a pencil, a piece of string and a map and draw a circle around your location. Then look at the maps in the *Directory of North American Military Aviation Communications* (See advertisement on page 17) and you'll probably find that you live within 200 miles of at least one major military aviation facility.

For best results, however, a wide-band outdoor antenna like the discone should be installed at the highest possible location. This type of antenna will do an acceptable job on all of the VHF and UHF frequency band so long as you keep the length of your coax short and use the highest grade possible. In general, thicker cables, like RG-8/U and RG-6/U give better results than thinner cables like RG-58/U and RG-59/U, especially at higher frequencies.

The greatest amount of military aircraft communications are found on 19 frequencies (or "channels"). These 19 frequencies are in common use all across the United States and Canada. Use them as a quick way to get started.

- 126.2 -- Military Airfields
- 134.1 -- Military Airfield Radar Common
- 236.6 -- Military Control Towers
- 239.8 -- METRO (Weather advisories)
- 243.0 -- Military Emergency
- 255.4 -- FAA Flight Service Stations
- 257.8 -- Military and Civilian Control Towers
- 311.0 -- SAC Command Posts
- 319.4 -- MAC Command Posts
- 321.0 -- SAC Command Posts
- 340.2 -- Navy Control Towers
- 342.5 -- METRO (Weather advisories)
- 344.6 -- METRO (Weather advisories)
- 360.2 -- Navy Control Towers
- 364.2 -- NORAD Common/Air Intercept Control
- 372.2 -- Military Dispatchers
- 375.2 -- METRO (Weather advisories)
- 381.3 -- TAC Command Posts
- 415.7 -- U.S. Government VIP In-flight Telephone Link

Monitoring military aircraft is one of the final frontiers for scanning enthusiasts. With a little patience, a list of active frequencies and a good scanner, you can tune in on the action!



Jack Sullivan is the president of Hunterdon Aero Publishers. His *Directory of North American Military Aviation Communications* is available for \$14.95 plus \$2.00 shipping and handling. To order call 1-800-542-SCAN or see their advertisement on this page.

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A Visit to

Radio Finland

by Jeff Chanowitz

Radio Finland is one of shortwave's finer stations that, aside from some criticism of the station's strict "no QSL" policy, seldom seems to receive much publicity. A progressive and often innovative station, it seeks to be the world's primary source of Nordic news. Jeff Chanowitz had the opportunity to visit the Helsinki-based station, interviewing director Juhani Niinisto and several staff members. His report provides some fascinating insight into Radio Finland.

Nestled in the northeastern reaches of Western Europe lies the small five million-strong nation of Finland. For most Americans, Finland seems somehow distant, conjuring up images of blinding snow, blond women, and polar bears. Listeners to Radio Finland know better, these stereotypes having been replaced by the latest news of the Nordic region.

Located in a huge complex of white buildings in the capital of Helsinki, Yleisradio -- more commonly known by its acronym YLE -- is the government-owned broadcast service that operates four FM radio networks, three television networks, and an international radio service. Although

it's known as Radio Finland, the international service is not a separate department but a part of YLE 3, the FM network that broadcasts news and regional programming.

The international service began in 1939, a critical year for Finland. That year, nearly 23 years after gaining independence from Russia, Finland was invaded by Soviet troops and forced to fight alone for its political survival against overwhelming odds. It was at this time that Finland took to the airwaves, broadcasting in order to plead its case to the world.

Following a protracted war in which the country managed to retain its sovereignty,

Finland signed a peace treaty with the Soviet Union in 1944 and reinstated its political policy of neutrality. In 1957, the international service was discontinued, remaining off the air for some ten years. It resumed broadcasting its international service in 1967 and in 1978, the service was reorganized into the current news format.

Today, Radio Finland is composed of 35 full and part-time employees with programs in Finnish, Swedish, English, German and French, as well as a unique weekly broadcast in classic Latin. The English language service is the oldest foreign language to be offered by the international service, but it's not the most popular. Audience figures are fairly hard to gauge in international broadcasting. However, judging from the 15,000 letters received annually, the German service seems to be the most popular, garnering the bulk of the mail. The English and Finnish language services rank second and third respectively.

In 1972, Juhani Niinisto joined the YLE staff. Currently, he presides over the international service's operations. During a conversation at the YLE studios, he stated that, "Radio Finland's primary mission involves communicating the latest news to Finnish nationals abroad." However, Finnish nationals comprise but a tiny percentage of the audience. The service's secondary mission, which involves communicating the news and views of Finland to the world, represents a much greater audience and is the main target of the international service's programming.

"Not many bad things happen to Finland," Niinisto remarked. This is why the U.S. media tends to ignore the country. Because of this fact, Radio Finland's international service plays an important role as one of the few sources of Finnish news for the world. This role prompts the station to put more



Mr. Hannu Bernstrom, studio manager at YLE's external broadcasting continuity unit, plays the recorded English broadcast. Juhani Niinisto, head of the external service, stands in the background.

emphasis on consistently providing accurate and in-depth stories as a part of the regular news coverage.

In addition to covering Finland, Niinisto sees Radio Finland as a "regional service" that competes with Radio Sweden for listeners wanting the latest coverage of the Nordic region. As Niinisto says, "We want our service to have a competitive edge." The use of a toll-free "800" telephone number in the United States is an example of innovative ideas that are a part of Niinisto's philosophy.

Designed to attract and service listeners, the toll free audience response line provides a quick and inexpensive way for listeners to request schedules, ask questions, or make statements to be aired on the audience mail program, "Air Mil." In the United States, the number is 1-800-221-9539. Outside the U.S., the number is 1-203-688-5540.

Radio Finland also tries to attain its "competitive edge" through programs like *Business Today*. "This business program," says Niinisto, "takes advantage of shortwave's ability to provide the latest news fast, thus beating the U.S. media by over a month." In addition to *Business Monday*, Radio Finland provides a number of weekly programs that reflect the life and interests that make up democratic Finnish society. These include *Sports Fare*, *Faiths in Finland*, *Learning Finnish*, *Out and About*, *Perspectives*, and *Air Mail*.

On a daily basis, Radio Finland presents a

daily press review and *Northern Report*, which is a summary of the day's news. Occasionally, Radio Finland also presents features like *Fifty Years Ago Today*, a series of historic programs that presented the events that led up to the Soviet/Finnish War.

In keeping with the international service's competitive philosophy, the English language service is in the process of molding its sound in a style similar to AM radio news in the U.S. This is reflected in a recent move that brought Terry Shultz straight from a station in the United States to Finland for the sole purpose of Americanizing the news sound. Shultz is heard daily reading news and is just one of the many American expatriates on the Radio Finland staff.

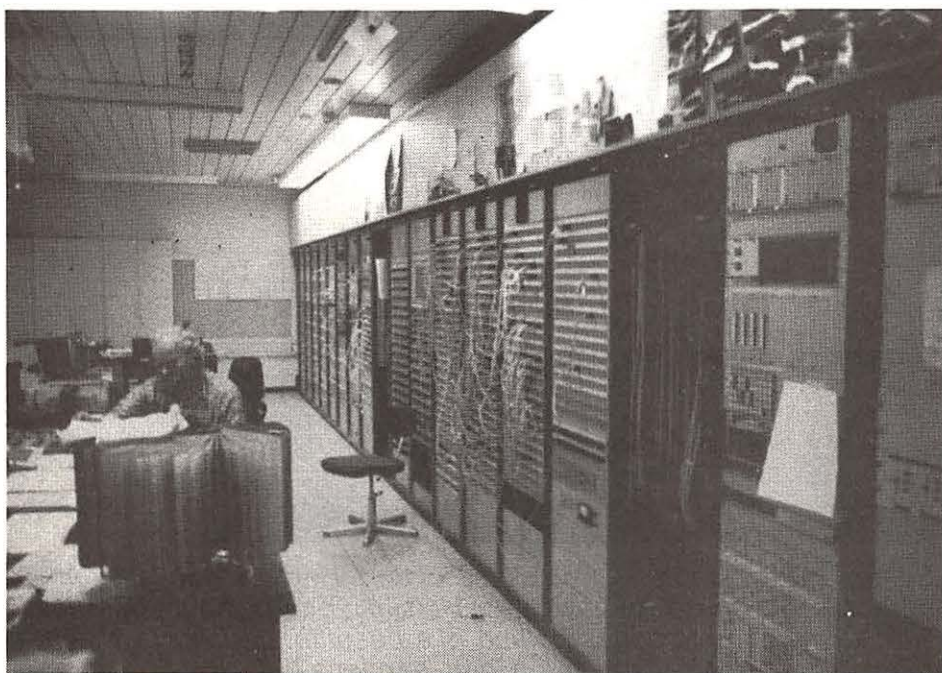
Kimmo Wilska is another ex-patriate who spent much of his early life in New Mexico. Wilska had actually listened to the service before he became a staff member. He recalled that his father, who was a Finnish native, owned a shortwave radio and was proud of the antenna that he had set up for the purpose of receiving Radio Finland's broadcasts. Later, when Wilska went back to Finland and saw an ad in the paper that mentioned an opening at the international service, he jumped at the chance and was hired.

Today, Wilska is one of the few members on the staff that speaks English and Finnish fluently. He is also one of the few staff members that both read and write news. On occasion, he still talks with friends from

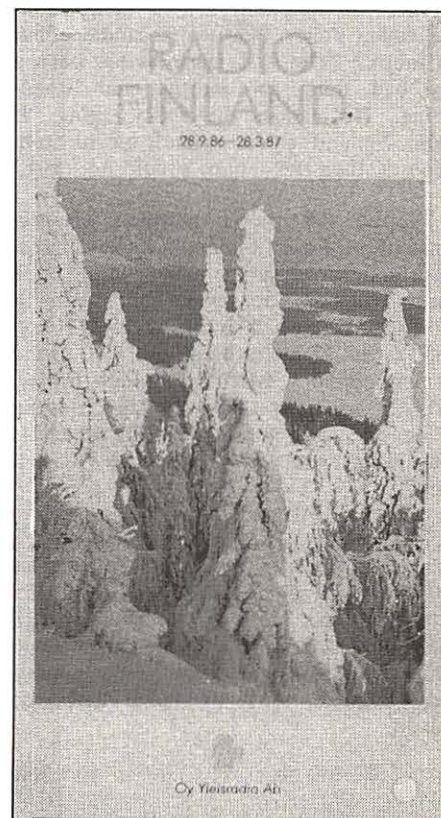


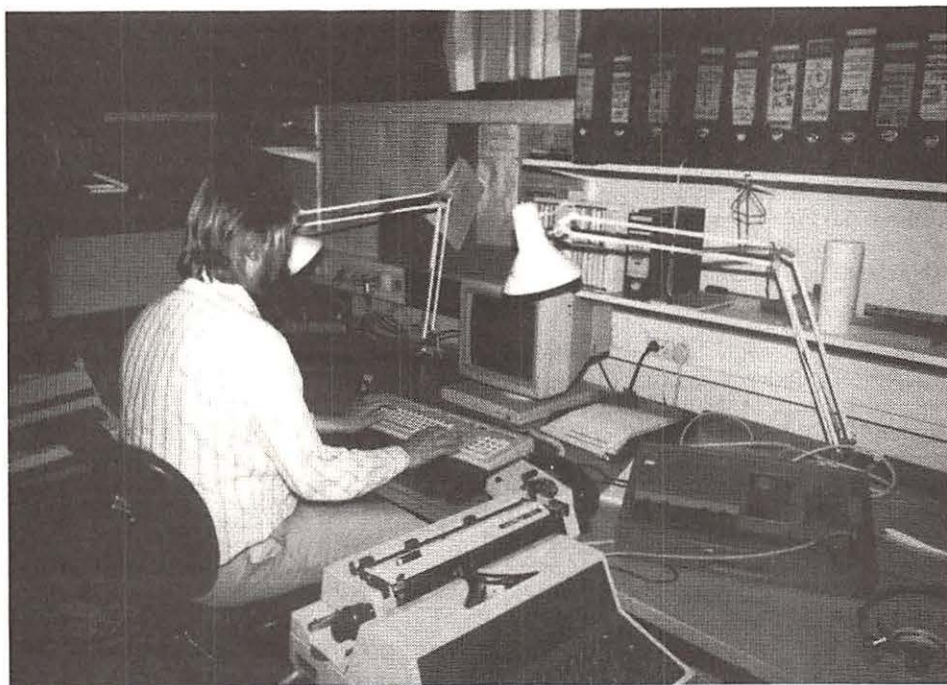
Nestled in the northeastern corner of Europe, Finnish natives are often amused by the misconceptions entertained especially by Americans regarding their country.

Below: A schedule cover is the closest you'll come to a QSL (this one from Ray Labrie of New Hampshire)



The main control center at YLE.





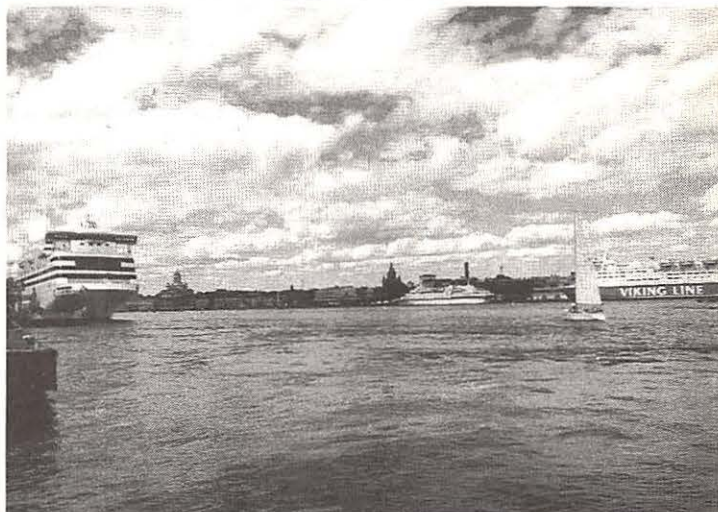
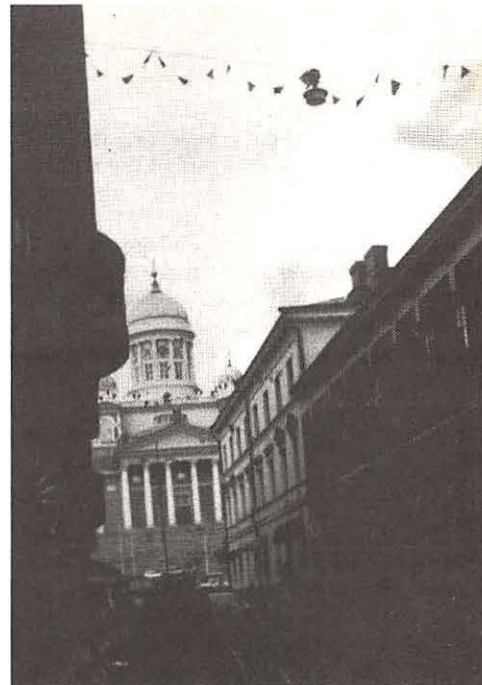
Kimmo Wilska of the external English broadcast is one of the few staff members that can both read and write the news.

America and says he's amused at some of the questions he gets about Finland. He stated, "One person asked if there were polar bears roaming the streets of Helsinki!"

While in many respects Radio Finland is "listener friendly," it has a strict non-verification policy. Niinisto is candid about the subject: "The QSL business has been a very bad thing for international broadcasting." He justifies the policy saying, "If Radio Finland cannot stand on its own purposes, then the service should not exist."

Despite the recent addition of new transmitters, Radio Finland's signal is most consistently receivable only during the morning hours. The service broadcasts at 6:50-7:05 EDT, which is 1050-1115 UTC on 21550 in the 13 meter band, or 15400 in the 19 meter band -- Monday through Friday, 8:00-8:25, which is 1200-1225 UTC on the frequencies, and 9:00-9:25 EDT, which is 1300-1325 on the same frequencies 7 days a week.

The quality of evening broadcasts are variable; however, they can be received at 7:00 p.m. EDT, which is 2300 UTC on 15185 in the 19 meter band and 11755 in the 25 meter band. A schedule can be provided by calling the audience response line or writing Radio Finland, Box 10, 00241 Helsinki, Finland.



Some "tourist" shots -- Boats in Helsinki Harbor; not far from the harbor is this church in downtown Helsinki; one of the many lakes for which Finland is famous. Finland is a beautiful country in which, as Niinisto remarked, "Not much bad happens."



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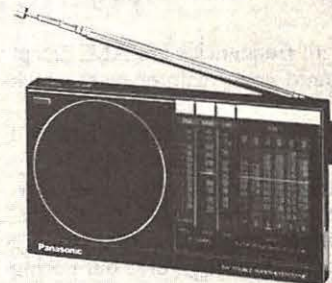


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How to have a good time At the Airshow!

by Bob DiCorcia

It's airshow time. The US Navy's Blue Angels Flight Demonstration Team along with the US Air Force's Thunderbirds are well into their performance season. The June issue of *Monitoring Times* listed the 1990 Blue Angels schedule for 1990. I would like to invite you to see where your tax dollars are going. There's a lot of excitement and a lot to see and do at an airshow.

I've seen the Blue Angels perform three times in the past two years and look forward to seeing them again this year (along with the USAF Thunderbirds). Through various sources (including reader input) I've accumulated about 20 frequencies that the Blue Angels use, but the ones I've heard consistently are:

Air to air - Alpha	142.0
Air to air - Bravo	143.0
Ground crew/maintenance	143.6
Air to air	241.4
Air to air	250.8
Air to air - 5, 6	251.6
Air to air - 1, 2, 3, 4	275.35
Air to air	360.4
Air to air	384.4
Air to air	395.9

Note that all frequencies are AM, except for 143.6 (ground crew/maintenance) which is FM.

Many of the frequencies that are reported each year are those of the local FAA Tower Controllers, either commercial or military. The Blue Angels (as well as the Thunderbirds) use these frequencies for Ground Control, Takeoffs, Landings, etc., but during their precision formation flying, their COM radios are locked onto their "home" frequencies.

If anyone is wondering why the Blue



Angels utilize so many frequencies: their high speed maneuvers (these are NOT stunts) are practiced, rehearsed, coordinated and performed through instrument readings, visual sightings, and radio communications. The pilots utilize one frequency when all six Blue Angels (there are seven aircraft, but one's a spare, more on that later) are flying in formation.

For various maneuvers, the aircraft split into two groups. The group of four consists of the Flight Leader ("Boss" on the radio), the Right Wing, the Left Wing, and the Slot (the Slot Pilot guides his aircraft into the "slot" behind the Leader and between the two Wings). This group uses a specific frequency for their formation flying.

The second group is composed of the Lead Solo and the Opposing Solo. Their frequency is used to control their high speed

opposing "near misses" (these are professionals, there is nothing that approaches a near miss). At various points in the demonstration all six aircraft rejoin the formation and utilize a specific frequency for those sets of maneuvers.

The radio plays an important part in

the precision of our Armed Forces Flight Demonstration Teams: "Start Engines, Ready, Now," "Smoke Guns, Ready, Now," "Adding Power," "Setting up for the Diamond Roll."

You'll also hear the pilots point out errors to each other when they are a degree off (it looks flawless from the ground), and locate each other after a high speed cross sends them miles apart (in seconds they're in all directions: north, south, east, west, and up, Up, UP). During practice (usually the day before the performance) you'll hear the team locate local landmarks for visual sightings during the performance, give each other tips to improve their skills, and practice various routines until they've improved the precision of their split second performance by another order of magnitude.

The pilots use handles in their communications that usually serve to identify their rank, nickname or name, such as: Boss, Doc, or Ziggy.

The Blue Angels currently fly seven F/A-18 Hornets. Six are flown in the demonstration. Number 7 is a "two seater" (F/A-18B) and is used for publicity flights (many local officials, reporters, etc. have received the privilege of having their stomachs turned inside out during a flight with the Blue Angels). Number 7 is also used as a spare.

It is rare, but if needed the 7 is changed to the replacement number and flies with its other five siblings. I've had the opportunity to see the two seater make an appearance as





number 4. Each pilot has a number that identifies him and his aircraft: 1 is the Flight Leader (Boss), 2 is the Right Wing, 3 is the Left Wing, 4 is the Slot Pilot, 5 is the Lead Solo, and 6 is the Opposing Solo. Number 7 is the Narrator during the Blue Angels' performance who flies the bird of the same number, accompanied by number 8, the Events Coordinator.

Speaking of numbers: Did you ever notice that USAF Thunderbirds number 5 has one of its numerical markings upside down? Can you figure out why number 5 is displayed upside down? Hint: read the last two words in each question again, and notice how number 5 spends most of his time.

In addition to the seven F/A-18s and the eight pilots, the Blue Angels team consists of three USMC C-130 transport aircraft known affectionately as Fat Albert Airlines (in the past one Fat Albert C-130 wore the colors of

the Blue Angels: blue fuselage and wings, with bright yellow nose and markings; all C-130s in Fat Albert Airlines wear the distinctive insignia and name of the Blue Angels), three Marine Corps pilots for the C-130, five staff officers and almost 100 hand-picked enlisted Navy and Marine Corp maintenance and support personnel. This is a team in every sense of the word.

While the flight demonstration teams are preparing to soar above the crowd, I am quite busy below. On my right shoulder my camera bag contains two camera bodies, assorted lenses (a zoom lens is required; I don't want my friends to think I took a picture of a bird), accessories (including a book on photography, I read the chapter on backlit objects at least twice), plenty of film (I don't want to run out, it's usually available inside the gates, but it's verry expensive), spare anythings and miscellaneous parts (batteries, masking tape, etc.).

On my left shoulder is a soft-sided video camera bag from Radio Shack. This bag is just fine for holding a Realistic Pro-2004, a Rhapsody TV-628 ADP 12 volt power pack (with coaxial barrel plug) or an Ambico 12 volt VCR power pack with cigarette lighter jack, a voice-activated cassette recorder (and several 120 minute cassettes, spare batteries, and an attenuating phono plug to 1/8 inch mini plug audio cable), external speaker, and of course an antenna.

I use a Radio Shack telescoping whip such as #20-006 retrofitted on a short mast (a wall lead-in tube works, #15-1200) with a short (3 inch) piece of coax with the appropriate connectors and/or adaptors. I also carry frequency listings, extra batteries, connectors, cables, sunglasses, suntan lotion and perhaps a canteen.

All frequencies are entered into my scanner the day prior to the airshow and everything is tested beforehand. I program one bank for the Blue Angels' frequencies, one for other military aero frequencies, one or two for state,

county and local police, fire, EMS, and amateur radio frequencies (traffic reports, road conditions, etc. to and from the event), and one bank for military base frequencies (lots of action here: lost children, heat related injuries, traffic jams in and out of the base, crowd control, special assignments, airbase crash crews — you should have seen and heard the excitement when a WW II fighter taxied over a car parked on the tarmac moments before the Blue Angels were due to begin their pre-flight checks).

Discretion is always the priority with scanners in public. However, when the antenna attracts the attention of the officials at airshows, I have found them to be curious and interested, and I haven't had any problems (sincerity helps). The crowd is just fascinated at hearing the pilots talk to each other as they perform the flight maneuvers that they were trained to perform in combat. Watching these men fly the powerful F/A-18s with such grace, precision, daring and confidence keeps your heart alternately pounding and stopping.



If you haven't already and you have the opportunity to see the Blue Angels or the Thunderbirds perform, I highly recommend it. If you have seen them, see them again. And introduce a friend to airshows.

Just one word of caution: Watch out for the Sneak Attack!



If you have a story of how radio has played a part in your life or the life of your community, send it to Monitoring Times. If accepted for publication, we'll send you \$50.00. All stories should be true, real life events. Manuscripts should be approximately 1,000 words and must include at least one clear photograph.

Shortwave Broadcasting

Glenn Hauser

Box 1684-MT
Enid, OK 73702

ALASKA KNLS announced it has a blue and white pennant available (Mike Fern, CA, *DX Spread*)

ANGOLA RNA domestic service has reactivated 4950, irregularly used for "A" program only between 1800 and 0500, along with 7245; after 2300, 3355 is added; at 0500-1800 on 7245, 9720, 11955. "B" program 0500-1800 on 9535, 7215, adding 3355 after 1700 (Richard Ginbey, Namibia, Radio Netherlands Media Network)

RNA heard on 2938.3 variable at 2330, probably a harmonic of a varying mediumwave frequency, parallel 1367 and 4820 (Henrik Klemetz, Sweden, *SW Bulletin*)

BOLIVIA Radiodifusoras Mineria, Oruro, sign-off varying as late as 0220, on 4981.5 varying to 4981.8 (Jan-Erik Oesterholm, Finland, and Henrik Klemetz, Sweden, *SW Bulletin* and *Play-DX*) Reactivated after many years, sked given as around 1000 to 0200; requests reports to C.C. 247, Oruro (Julian Anderson, Argentina, *Pampas-DXing*)

Radio La Plata is irregular, heard once at 1630-1705 on 9717.1 (Anderson, *ibid.*)

Radioemisora Tarabuco is new station on 5217v, heard at 2320-0110 sign-off, announcing 5215 (Daniel Camporini, Argentina, *Radio Panorama* via *Radio Nuevo Mundo*)

Radio Cosmos, Cochabamba, drifted down to 6094.3, opening at 0930 (Yoshinori Sano and Nobuyoshi Aoi, Japan, *RNM*)

A new one on 3755, tentatively Radio 17 de Septiembre (Claudio R Moraes, Brazil, *WRTH*)

La Voz del Tropico landed on 4747.47 at 2346 (Giuseppe Zella and Dario Monferini, Italy, *Play-DX*)

Radio Emisora Villamontes is new on 4599.3, announcing 4650 from 00900, but actually opening at 1000 with Amanecer Chaqueno; it's in Villamontes, Chaco province, Tarija department (Gabriel Ivan Barrera, Argentina, *RN Radio-Enlace*)

BOTSWANA Radio Botswana's latest schedule: 7255 at 0400-1800; 3356 at 0400-0530 and 1530-2100; 5955 at 0530-1530; 4830 at 0400-2100 (Gordon Darling, PNG, *Oz-DX*)

BRAZIL Last month's station on 4895 also sounded like Radio e TV AM, but its name really seems to be Radio IPB AM, the initials of concessionaire Ivan Paez Barbosa (Antonio Ribeiro da Motta, Brazil, *SW Bulletin*) Call is ZYF200 (Olle Alm, *SWB*)

Radio Nacional Amazonia reactivated 11780, strong parallel to 6180 from 0900 relaying Observatorio Nacional timesignal (Nobuyoshi Aoi, Radio Japan)

Radio stations in six states have petitioned the president for permission not to carry A Voz do Brasil (2200 UTC) and Projeto Minerva, saying no one listens and advertising income is lost (BBC Monitoring)

All that spare transmitter time in Brasilia has another customer: Radio Beijing was to sign a relay agreement, but the newspaper *O Estado de Sao Paulo* editorialized against relaying "the spokesmedia of the most reactionary political and economic policies" (BBCM)

CANADA With HCJB off 6130, CHNX Halifax can now be heard, at 1006 (Chuck Bolland, FL, *RCI SWL Digest*)

CHINA (non) Extensive schedules for Voice of June 4th, which BBCM probably picked up from a Hong Kong newspaper, are exaggerated; heard in Japan only at 2100 on 15280, but difficult to ID due to strong jamming (Tetsuya Kondo, AL)

China has 1.2 million radio stations, including 60,000 in Beijing (BBCM via *SCDX*) Whew; that must include two-way.

CONGO La Voix de la Revolution Congolaise is back on shortwave, announcing this test schedule: Tuesday-Thursday 0700-1100 on 7105, 9610, 1100-1700 on 9610, 11710, 1700-2100 on 3265, 4765; Friday-Sunday 0700-1100 on 7175, 9715, 1100-1700 on 9715, 15190, 1700-2100 on 3265, 4765; silent on Mondays; best heard on the lowest two (Henrik Klemetz, Sweden, *World of Radio*) Reports requested to Box 2241, Brazzaville (BBCM) It also has a third transmitter throughout on 6115 with domestic service; 15190 and 4765 best here (Richard Ginbey, Windhoek, Namibia, *RNMN*)

COOK ISLANDS RCI heard again on 11761.6 in English and Maori at 0730 (Leigh Morris, South Australia, *OzDX*) On 11760 at 0707 relaying RNZI until 0715 (Bruce MacGibbon, OR, Radio Japan *DX Corner*)

COSTA RICA Radio Impacto, 5030/5044, 6140/6150/6160, closed down shortly after Widow Chamorro became president of Nicaragua, its mission accomplished. Also doesn't look like Columbia 4850 and Rumbo 6075 will be back any time soon (Don Moore, visiting CR, *RFPI*)

RFPI reactivated 13660, but then switched to 13630 to avoid Baghdad, always parallel 21566, weekdays 2000-0300, weekends 1800-2430.

A potentially secular program appears on the AWR, Radio Lira schedule in English: *Costa Rica Today*, Sunday at 1230, UTC Monday 0030; try 9725 and 11870 (via Tetsuya Hirahara, *RNM*)

CUBA Radio Rebelde shifted again, to 3365, noted at 0445 and 0956 (Mike Fern and Bill Flynn, CA, Bruce MacGibbon, OR, *DX Spread*) The other channel, 5025, is apparently responsible for a third harmonic heard on 15075 until 1159 (John Fischer, Ont., *Fine Tuning*)

(non) Busted more than once in Florida by the FCC, more than a year since the last one, La Voz de Alpha 66 is back, this time legally, via WHRI, Indiana, UTC Tuesday-Saturday 0030-0100 on 9495, 7315, repeated Monday-Friday 1130 on 11790, 9465; however, WHRI soon inserted a Spanish preacher at the evening time, bumping Alpha 66 an hour earlier to 2330 Monday-Friday on two different frequencies, 13760 and 17830, the latter not reaching Cuba well, and should be replaced by 9495. Reports to Box 420067, Miami, FL 33142.

WHRI still carries another Cuban clandestine program, La Voz de la Fundacion: Monday-Friday 1200-1300 on 11790, 7355, 1500-1600 on 15105, 21840; Tuesday-Sunday 0100-0300 on 9495, 7315; Saturday & Sunday 0500-0600 on 9495, 7315; reports to Box 440069, Miami, FL 33144 (Jeff White, *World of Radio*)

The Comite Cubano Pro-Derechos Humanos is trying to get a license for a 5-kilowatt SW station in Miami to broadcast to Cuba 4 hours nightly at 7 pm Cuban time by yearend; would cost \$60,000. This station says it's humanitarian, not promoting armed struggle (Jeff White, *RN Radio-Enlace*)

CHILE Radio Esperanza is a new station in Temuco, heard on 6090 at 1700, address Casilla 830 (Gabriel Ivan Barrera, Santiago, *RN Radio-Enlace*)

DENMARK R Denmark advises it no longer issues QSLs (Australian *DX News*)

ECUADOR Radio Centinela del Sur heard on 4900.1 instead of announced and listed 4890, with football until 0114 (Dario Monferini, Italy, *RCI SWL Digest*)

HCJB has added another language, Uzbek, Monday-Friday 0130-1045 on 9655 and 11845 for Europe (R Australia Japanese *DX Time*) For Asia would be more appropriate.

FRANCE Though on many frequencies to elsewhere, only 9800

remains to North America for RFI's English at 0315-0345; via French Guiana. RFI heard until 0029 on 14240, second harmonic of 7120 (Wade Smith, NB, RCI *SWL Digest*)

GERMANY Under old regimes, Eastern European stations had nothing to say in Russian; now, RBI is testing in quarter-hour blocks: 0530 on 11970, 15240, 21540; 0700 on 15240, 21540; 0945 on 21540 (and weekends on 21465); 1130 on 11970, 15440, 21465, 21540; 1330 on 11970, 21465, 21540; 1430 on 17880, 15240 (via Wolfgang Bueschel, Germany, *W.O.R.*)

GREECE Voice of Greece's revised schedule to North America: 1200-1250 on 15625, 15650, 17535; 1500-1550 on 11645, 15625, 17535; 0000-0350 on 9395, 9420, 11645; English news daily at 1235, and except Sunday at 0130, 0340, 1530 (John Babbis & John Carson, RCI *SWL Digest*)

GUAM KTWR's Pacific DX magazine is gone, since producer Bill Damick has moved to TWR Swaziland (Australian *DX News*) He plans to tape the program there and send it back to Guam (Arthur Cushen, *RNMN*)

GUATEMALA La Voz de Nahuala closing at 0304 on 5039.5 (Julian Anderson, Argentina, *Pampas-DXing*, who says it's usually blocked by LV del Upano) Not listed on this frequency in the *WRTVH 90* or *PWBR 90*, though previously reported there.

La Voz de Guatemala still announced 6180 but this transmitter has been scavenged for AM parts; no plans to resume SW (Jeff White, Guatemala, *RNMN*)

GUIANA FRENCH RFO heard at 0030-0117 on 6355, another punch-up error for 3385? (Brian Alexander, PA, *FT*) See also FRANCE

ICELAND Ríkisutvarpid schedule: to North America 1410-1440, 1935-2010, 2300-2335 on 13855, 15770, 17440; Europe 1215-1245 on 11418, 13830, 15770, 17493, 1855-1930 on 3295, 11418, 13855, 15770 (Olafur Briem, Sweden *DSWCI SW News*)

IRAN IRIB's summer schedule in English: 1130-1225 on 11940, 11790, 11715, 9705, 9575; 1930-2030 on 9022, 6035 (via Tom McKeon, IN, RCI *SWLD*)

(non) KUSW's clandestine program in Farsi was supposed to start in June at 1430 on 15590 (Wendel Craighead, KS, A*C*E) Day of week not given; usually silent then, but checked on a Saturday at 1445 in English; heavy splatter from maladjusted Muscovite on 15595.

Voice of the Communist Party of Iran at 1805-1909 on 6409.91 varying to 6409.78, and 4470.07 (Bernhard Grundl, Germany, *Play-DX*)

Voice of the Mujahedin of Iranian Baluchistan heard at 0517-0521 on 9545 (Peter Wilhelm Mueller, Germany, *DSWCI SW News*)

ITALY Voice of Europe gone from 7540v; maybe transmitter blew up? Radio Europe, Milano, operates 0700-1100 on 7293.1 to 7294 (Dario Monferini, *Play-DX*) Radio Italia Internazionale, Spoleto, reactivated on 7140.1 on a Saturday at 0656; address is Vico Volusio 1, I-06049 Spoleto (L. Botto Fiora, Italy, *Play-DX*)

JORDAN Radio Jordan has started an external service in Arabic, 0800 to Australia and Far East, 0900 to South America, 1000 to North America, 2030 to Gulf, Australia, Far East, 2230 to North Africa and Central America, each for one hour, per Jordan Times; confirmed at 1000-1100 on 13655, then switching to English, domestic relay, until 1315; and on 9560 at 1320-1630; the 2030-2130 broadcast had 11810 splitting away from domestic relays which continued on 9560, 15435 (BBCM) Heard in Arabic on new 17695 at 1500-1900, //11810, IDs often (H Nakada, Radio Japan *DX Corner*)

KURDISTAN (non) Voice of the People of Kurdistan heard on one or two of 15048v, 7100v, 4040-4340v, at 0300-0430 except Friday 0900-1100; daily 1600-1730; times also vary, and also heard in past at 1300-1430; run by the Patriotic Union of Kurdistan, hostile to the Iraqi government (BBCM)

LIBERIA Due to the rebellion, non-essential staff of ELWA were evacuated from the country but the station stayed on the air; two missionaries were killed in cross-fire (Chuck Roswell, *Bonaire Wavelengths via DX Spread*) Check 11955 at 0800, under Mayak; 11830 weekdays at 1600-1630. Nine VOA transmitters remained on, though most US nationals were withdrawn (*RNMN*)

LITHUANIA Observations by our astute monitors Ernie Behr and Bill Peek that Moscow deliberately degraded transmissions of Radio Vilnius have been confirmed, as the station sent a telegram of complaint to Soviet authorities, expecting this to end with the postponement of independence (via BBCM)

MAURITANIA ORTM's carrier came on 4848 at 0630, then drifted back to 4845 by 0715 (Robert Shepherd, Australia, *Oz-DX*)

NEW ZEALAND Radio New Zealand International keeps revising its schedule; this one is supposed to last until October: Monday-Friday 1745-2205, Sunday 1845-2205 on 15485; Sunday-Thursday 2205-1710, 2205 Friday to 0645 Saturday, Sunday 0200-0800 on 17675; Monday-Friday 0710-0830 and Saturday 0645-1100 at 9855. 15485 usually blocked by a strong utility, as expected; Peace & Progress planned to drop 17680 July 31, so maybe New Zealand will be back.

Target date for the new Print Handicapped station 2XA in Levin is August 25, 1 kW on 3935; schedule may be expanded from the former time on medium wave 1602, Sunday 0700-0900, Monday-Thursday 0600-1000 (Arthur Cushen, *RNZI*)

PAKISTAN Certainly not in Dacca, Radio Pakistan in English at 1600-1630: 13665, 15605, 17555, 17895, 21480, 21530; 1105-1120 on 17555, 21520 (Wolfgang Bueschel, Germany, *W.O.R.*)

PALESTINE (non) Voice of Palestine added a new morning SW transmission via Baghdad, 0330-0630 on 9705 (BBCM) Al-Quds Radio on 15050, signing on at 0605 with anthem, 0627 English ID only for AM & FM frequencies (David Kernick, England, *Play-DX*)

PARAGUAY Radio Nacional, 9735, claims "cobertura mundial" (worldwide coverage), most weekdays with sports after 0100, but one UTC Sunday a very irregular but nice all-Paraguayan music program until 0402 sign-off. Radio Encarnacion, 11945.1, very weak at 0100 but seemed sports parallel to 9735 (Ernie Behr, Kenora, Ont., *W.O.R.*)

PERU New stations: Radio Saposoa on 6260 at 0315; Radio La Merced on 6752, not to be confused with another R La Merced, Junin, 4960 at 0200; reactivated: Radio Cobriza 2000, 4925 giving sked as 1000-1400, but also heard opening at 1115; Radio Nororiental, 5260v until 0300; R Santa Rosa de Lima, 6045 (Rafael Rojas, Peru via Gabriel Ivan Barrera, RN *Radio-Enlace*) More new ones: Radio San Nicolas, 3860 until 0000 closing; Radio Huandoy, 4560 at 2315 (Rojas via Barrera, *Onda Corta*)

The 13255.35 kHz station heard at 2300-0345, ID as La Voz de San Antonio, Bambamarca, 4417 (Bernhard Grundl, et al., *DX Camps, Play-DX*)

Radio La Merced (see above), 6754 approx., irregular from around 0000 to variable sign-off 0230-0305, folk music, ID says 6750 and 1400, mentions Depto. de Cajamarca (Don Moore, Costa Rica)

Radio San Juan de Tarma, on second harmonic 2800 at 0200 (Ole Forr, Sweden, *SWB*)

PHILIPPINES FEBC in English: 0000-0230 on 15480; 09-1100

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Shortwave Broadcasting

on 11850, 9800; 1300-1600 on 11850 (R Australia DX Time)

POLAND After a break, the private Radio Scandinavia relay by Radio Polonia was to resume, Sundays and Saturdays at 1000-1100 on 9675 (Sweden Calling DXers)

QATAR QBS' new schedule: 0245-0800 on 11820; 0900-1800 on 17770; 1800-2130 on 15265 (Bob Padula, RA DX Time)

ROMANIA See schedule last month; R Romania International feature programs at 2000 and 0230: Monday, *Youth Club*. Tuesday, *Tourist News*, *Radio Amateurs*, *Favourite Tunes*. Wednesday, *Friendship & Cooperation*, *Romanian Musicians*. Thursday, *Letterbox*, *Skylark* = Romanian folk music. Friday, *Cultural Survey*. Saturday, *Pages of Romanian Literature*, *DX Mailbag*. Sunday, *Sunday Studio* (via John S Carson, OK)

SAUDI ARABIA Holy Qur'an program on new 21505 and 21665 at 0800-0955 (Wolfgang Bueschel, Germany, RCI SWL Digest)

SOLOMON ISLANDS SIBC coming in loud & clear on 9545 around 0630-0700, with Catholic and Bahai programs (Bruce MacGibbon, OR) And relaying BBC before 0630 (gh)

SOMALIA See our earlier items about \$50 being required for a QSL; Harald Kuhl in Germany received a letter from someone at Radio Mogadishu, saying they QSL freely and were flabbergasted that an "imposter," Mohammed Hassan Had, had been asking for payment. Kuhl suggests we ask the station not to punish him severely (DSWCI SW News) However, Radio Mogadishu has not been heard on 7200 since mid-November, says BBCM; try a follow-up report. Radio Hargeisa was believed destroyed in the civil war, May 1988, not heard since the following October on 11640, 7120 (BBCM)

SRI LANKA Due to renewed fighting in the northeast, Deutsche Welle announced in late June that its Trincomalee relay had been shut down again (Martin Gallas, IL, RCI SWLD)

VOA is no longer interested in expanding its relay, though still paying rent for the Puttalam site (*Far Eastern Economic Review* via Chuck Albertson)

Radio Japan's relay at Ekala should be on the air by January 1991, two 300 kilowatts belonging to SLBC, leased by Radio Japan ten hours a day (via Wolfgang Bueschel and RA)

SUDAN Radio Omdurman, heard in English at 1543 on 9540 (Craig Edwards, South Australia, Oz-DX)

TANZANIA R Tanzania external service occasionally on new 11765 at 1530-1915, sometimes parallel 9684; at 0330-0430 on 9684 only (Richard Ginbey, Namibia, RNMN)

THAILAND Or Sor, the Royal Palace station, left shortwave last year and is not in the *WRTVH90*; now heard again at 1100-1200 on 6149 (Victor Goonetilleke, Sri Lanka, RNMN)

TONGA Regarding the June report of Islamic broadcasts, I say no way! They'd burn down the radio station if anyone broadcast non-Christian stuff; was this QSLed? When I visited there I saw about 5 churches on every street, mostly Catholic and Mormon (Craig Daskalakis, CA, W.O.R.)

TUNISIA Due to Libya wandering around 15440-15450, Tunisia left 15450 for 15508.4-variable, at 0500-2300 (Wolfgang Bueschel, Germany) Monitored schedule of home service relay in Arabic: 17610 at 0400-1700, sometimes from 0300. 12005 at 1700-2245 or 2330; 15510v at 0400-2245, or 0300-2330; 11550 the same; all vary up to 2 kHz (Craig Tyson, Australia, FT)

UKOGBANI BBC shies away from doing a real DX program in English; the closest they came was the defunct *World Radio Club*. Not so in other languages: in German there's *Sundung fuer DXer*, Wednesday until 1854 on 9915, Thursday until 0433 on 6010 and 3975, which has given details of

relay site schedules otherwise difficult to extract; in Portuguese, *Frequencia DX*, UTC Tuesdays 0236 on 6110, 9515, 9825, 15390, repeated at 2244 on 6110, 9825, 11765, 11820, 15390. And in Spanish, *Radio Club Latinoamericano*, Wednesdays at 0110 on 6110, 9825, 11680, 11820, 15390; Saturdays after the 0300 news on 6110, 9515, 9825, 11680, 11820, 15390 (these are probably local days, not UTC) (via Mike Cooper, GA)

USA Jeff White and partner Indalecio Espinosa have filed an application with the FCC to build a 10-kW shortwave station, Radio Miami International, info, music and entertainment primarily for the Caribbean Basin. They hope for quick approval (*W.O.R.*) See also CUBA (non) What became of the FCC's 50-kilowatt minimum?

WCSN replaced 9840 with 11705 for Russian, fourth Sundays at 0905 (Leslie Edwards, PA and Wade Smith, NB)

Radio Free America, weeknights at 0200 UTC on WCCR, 7520, is getting dangerous -- the host seems to believe and promote the wackos he has on, like someone who eats plutonium for his health. Here's a great opportunity for debunkers to call the toll-free number (Jack Schmidling, IL, W.O.R.)

Another Family Radio station (inadvertently?) on shortwave -- WYFI, Norfolk, VA heard at 1620, another day from 1800 past 2200 on AM 26294.5 (Ed LaCrosse, CA, W.O.R.)

USSR Radio Pacific, Vladivostok, no doubt the least Soviet external service in English, heard on a Saturday at 1845-1856 on 15180 (Bruce MacGibbon, *DX Spread*) Another week it lasted only 3 or 4 minutes around 1850, covering only a few national news stories, nothing local, pro-Yeltsin, anti-Gorbachov (gh)

Moscow's fourth program is new on shortwave, 4055 from 0200, other days not opening until 0500 (David Kernick, England, DSWCI SW News)

Vasily's Weekend on the North American Service does its best to sound like an American rock DJ -- is this really what we want to hear from Moscow? It's scheduled Saturday at 2225, UTC Sunday 0025, 0225, 0325, 0525, 2325, UTC Monday 0125, 0425, 0625 (via John Carson)

That's just the start; RM is undertaking a joint venture with a US firm for a one or two hour daily commercially-sponsored program, but Moscow still doing the newscasts (*RNMN*)

VATICAN Vatican Radio has been testing to Africa on 21865 between 1530 and 2100, alternating with 21650, per AGDX (Wolfgang Bueschel, Germany, RCI SWLD)

ZAIRE Radio Lubumbashi, 7203, French talk and African music from 1730, best at 1750; seems to operate weekends only (Bjoern Fransson, Sweden, *SW Bulletin*) Also on 7202.9, 0421-0506 with La Voix du Zaire ID at 0453 (John Fisher, Ont, FT) Some like to imagine this is a separate radio country, since it was once breakaway Katanga.

LVZ, Kinshasa, on new 9650, heard only in daylight after 0400; last used a sesquidecade ago (Richard Ginbey, Namibia, RNMN)

ZIMBABWE Comrade Victoria Chitepo, Minister of Information, Posts and Telecommunications, says there are plans for an external shortwave service, a 500-kW transmitter and associated equipment to cost about \$15 million (BBCM)

Read more about broadcasting in REVIEW OF INTERNATIONAL BROADCASTING and/or DX LISTENING DIGEST. Samples \$2 each, 10-issue subs \$21, both for \$40; in North America, US funds on a US bank, from Glenn Hauser, Box 1684-MT, Enid, OK 73702.

Monitor Glenn Hauser's DX news reports concluding each SWL DIGEST on Radio Canada International: Sat 2337 UTC on 9755, 5960; Sun 1837 on 17820, 15260, 13670; 2137 on 17875, 15325; 2307 on 11730, 9755; Tues 1233 on 17820, 11855, 9635 and C-SPAN Audio 1.

And the weekly half-hour, *WORLD OF RADIO*, on WRNO, New Orleans: UTC Thurs 0030, 1530, 2300, Fri 0030, Sat 0300, 2330, Sun 2030 -- on 15420 until 2100, 13720 until 2400, 7355 until 0300, then 6185; also on Radio for Peace International Costa Rica: Fri 2000, 2330; Sat 0315, 0645, 1930; Sun 0215, 0845, 2230; Tues 2230; Wed 0200, 0545 -- on 21566 and 13630 weekdays until 0300, weekends until 2430; 7375-USB weekdays from 2330, weekends from 0045.


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Broadcast Loggings

Let other readers know what you're enjoying. Send your loggings to Gayle Van Horn, c/o Monitoring Times. English broadcast unless otherwise noted.

0010 UTC on 11880

SPAIN: Radio Nacional Espana. World news and national weather forecast. ID and "How Others See Us" discussing relations with Portugal and tax problems for Gibraltar. (Lloyd Van Horn, New Orleans, LA) Spanish programming heard at 2240 UTC on 21555 kHz. (Harold W. Bower, Sunbury, PA) (William B. Kruger, Miami, FL)

0010 UTC on 9565

USA: Voice of the OAS. Spanish. Excellent reception of current affairs program in the Americas. IDs in Spanish/English at 0030 UTC. (Michael Schoessow, Palo Alto, CA) *Welcome to MT-ed.*

0030 UTC on 9835

HUNGARY: Radio Budapest. National news and editorial on Hungary's role in the Warsaw Pact. (Bob Doyle, Shelton, CT) Audible on 11910 kHz at 0133 UTC. (John Carson, Norman, OK)

0100 UTC on 6090

LUXEMBOURG: Radio Luxembourg. Contemporary pop music, followed by ID and discussion on the current U.S. Top Ten. (Robert Renkewick, Keyport, NJ) (Frank Hillton, Charleston, SC)

0102 UTC on 6009.9

MEXICO: Radio Mil. Spanish. Announcer reading the news headlines. Distinctive whistle signal to station ID at 0104 UTC. Continued news to repeated ID routine. Poor signal quality for shortwave and AM service on 1000 kHz. (Larry Van Horn, New Orleans, LA)

0110 UTC on 9115 USB

ARGENTINA: Radio Continental. Spanish. Station ID at tune-in, program lineup and musical vocals. Occasional interferences during music and station promos. (Sam Wright, Biloxi, MS)

0200 UTC on 11830

IRAQ: Radio Bagdad. National news and Iraqi music. Discussion on art expositions in Baghdad and the daily "Press Review." Moderate co-channel interference from Radio Bucharest, Romania. (Bob Doyle, Shelton, CT) Heard on 13660 kHz at 2145 UTC. (Harold Bower, Sunbury, PA) (Stephen Price, Conemaugh, PA)

0256 UTC on 5010

MADAGASCAR: Radio Madagasikara. French. Fair with fading signal, during announcer duo. Native African music to news and ID at 0330 UTC. (Richard Lentini, Albany, NY)

0340 UTC on 9590

NETHERLANDS ANTILLES: Radio Netherlands. Newsline and Media Network programs. Monitored on 9715 kHz at 0745 UTC. (John Carson, Norman, OK) (Brian Bagwell, St. Louis, MO) (Sam Wright, Biloxi, MS)

0410 UTC on 4920

ECUADOR: Radio Quito. Spanish. Bank and market commercials for Quito. (Charles T. Edwards, Scranton, PA) Excellent signal quality for announcer's chat and "Radio Quito" IDs at 0527-0530. (Frank Mierzewski, Mt. Penn, PA) (Bill McDavitt, Durham, NC)

0420 UTC on 11550

TUNISIA: RTV Tunisienne. Arabic. Finally got a confirmation on this one. ID exactly as WRTVH, "Idha'atu-1-gumhuriya at-tunisiyya." Continued good reception for Arabic musical pieces. (Michael Schoessow, Palo Alto, CA) (A.R. Bailey, Phoenix, AZ)

0435 UTC on 4840

VENEZUELA: Radio Valera. Spanish. Latin vocals to "Valera" ID at 0440 UTC. Audible on parallel 4830 from 0510-0520 UTC. (Frank Mierzewski, Mt. Penn, PA) (Brian Bagwell, St. Louis, MO)

0521 UTC on 7255

NIGERIA: Voice of Nigeria. Music request show with national news at 0530 UTC. (Robert Landau, Secaucus, NJ) (John Carson, Norman, OK) (Donald Westbrook, Columbus, OH)

0600 UTC on 4940

COTE D'IVOIRE: RTV Ivoirienne. French. National anthem and sign-on IDs, to news topics and Afro pops. (Sam Wright, Biloxi, MS) Heard on 4940 at 0820-0840 UTC with music tunes and ID. (Frank Mierzewski, Mt. Penn, PA) (Donald Westbrook, Columbus, OH)

0603 UTC on 4832

COSTA RICA: Radio Reloj. Announcers continue talk to music and ID at 0608 UTC. Monitored on 6005 kHz from 0945-0955 UTC. (Frank Mierzewski, Mt. Penn, PA) (Richard Langer, Pittsburgh, PA)

0625 UTC on 6210

ITALY: European Christian Radio. Contemporary Christian pop vocals. Program schedule quote and English/French IDs, with QSL address. Fair to varying signal quality. (Richard Lentini, Albany, NY)

0635 UTC on 9480

MONACO: Trans World Radio. Interval signal to ID at 0640 UTC. Christian religious discussion on paraboles. (Michael Schoessow, Palo Alto, CA) Audible on 9480 from 0805-0815 UTC. (Jack Davis, Birmingham, AL) (Frank Hillton, Charleston, SC)

0745 UTC on 9660

AUSTRALIA: Australian BC Corporation-Brisbane. Fair signal amidst interferences during DJ's contemporary music program. Audible on 4920 kHz at 1300 UTC, with IDs and national news. (Michael Schoessow, Palo Alto, CA) (Don Moreland, Ridgecrest, CA)

0752 UTC on 6000

BRAZIL: Radio Gualba. Portuguese. Brazo pops and easy-listening music to station ID. Fair quality with intermittent fades on parallel frequency 11785 kHz. (Charles Edwards, Scranton, PA) Brazil's Inconfidencia also audible on 6010 from 0930-0945 UTC. (Frank Mierzewski, Mt. Penn, PA) (Kelly Jennings, Ottawa, IL)

0810 UTC on 5020

SOLOMON ISLANDS: SIBC. Fair signal for station ID and national news in English/Pidgin. (Michael Schoessow, Palo Alto, CA) Heard on parallel frequency 9445 kHz from 0710-0735 UTC. (Frank Hillton, Charleston, SC) (William Kruger, Miami, FL)

0945 UTC on 6169.9

COLOMBIA: La Voz de la Selva. Spanish. Low level modulation for male announcer's IDs, and music presentations of guitar ballads and rustic vocal tunes. (Rod Pearson, St. Augustine, FL)

1020 UTC on 4945

BOLIVIA: Radio Illimani. Spanish. Hypnotic flute music to lady's station ID with frequency. Music programming continued with very few breaks. Bolivia's Radio San Miguel also audible on 3310.3 kHz from 1030-1040 UTC. (William Kruger, Miami, FL)

1135 UTC on 9580

AUSTRALIA: Radio Australia. Report on Aussie cattle breeding and agricultural land use. (Bob Fraser, Cohasset, MA) Radio crime drama at 2335 UTC on 13700 kHz. (Bob Doyle, Shelton, CT)

1615 UTC on 21530

PORTUGAL: Radio Portugal. Travelogue program "Welcome to Portugal," featuring national castles and monasteries. National anthem and sign-off at 1631 UTC. (Bob Doyle, Shelton, CT)

1630 UTC on 9720

SRI LANKA: SLBC. Newscast on the half-hour suffering minimal interference and fairly weak signal. VOA relay in special English heard on 9645 kHz at 1645 UTC. (Michael Schoessow, Palo Alto, CA)

1740 UTC on 21650

VATICAN STATE: Vatican Radio. Commentary on Angola. Secular music to discussion on the African National Congress. (Bob Doyle, Shelton, CT) Audible on 11725 kHz at 0315 UTC. (John Carson, Norman, OK)

1815 UTC on 11935

INDIA: All India Radio-New Delhi. Weak signal on a program of beautiful Indian music pieces, between periods of soft-voiced lady announcer. Slightly better signal on parallel frequency 15360 [Bombay site]. (Michael Schoessow, Palo Alto, CA)

2125 UTC on 12085

SYRIA: Syrian BC Service. English announcements and IDs between Arabic musical tunes. Weak signal under atmospheric noise. (Michael Schoessow, Palo Alto, CA) Monitored 2150-2200 with ID and newscast. (Walter Sneider, Tyler, TX) (John Miller, Thomasville, GA)

2158 UTC on 17665

LITHUANIAN SSR: Radio Vilnius. Current updates on Moscow relations. Monitored on 11770 kHz at 2210 UTC with "Mailbag" and sports report. (John Carson, Norman, OK) (Brian Bagwell, St. Louis, MO)

2200 UTC on 15180

NORWAY: Radio Norway Int'l. International news and "Listener's Corner" show. (Robert Landau, Secaucus, NJ) Monitored at 2310 UTC on 11930 kHz. Radio Denmark's relay via Norway present at 2330 UTC on 11930 kHz. (Bob Fraser, Cohasset, MA)

2307 UTC on 15185

FINLAND: Radio Finland. News briefs and items on Finnish/Romanian relations. (John Carson, Norman, OK) Monitored on 11755/15185 kHz at 0000-0015 UTC. (John Miller, Thomasville, GA)

2330 UTC on 13675

BELGIUM: BRT. News and explanation of the government's plan to de-unionize the BRT. Monitored on parallel frequency 9925 kHz, with intermittent radio-teletype interferences. (Bob Doyle, Shelton, CT) (John Carson, Norman, OK) (Frank Hillton, Charleston, SC)

2337 UTC on 15140

CHILE: Radio Nacional Chile. Spanish. 60s oldies show with music from Ray Peterson, followed by commercial for the Bank of Santiago. (Charles Johns, Bangor, ME) Heard at 0033 with Nacional IDs and Spanish pops. (Stephen Price, Conemaugh, PA)

2345 UTC on 12060

USSR: Radio Kiev. Radio broadcast bridge from Kiev to Chicago listeners. (Bob Fraser, Cohasset, MA) ID and newscast at 0030 UTC on 11770 kHz. (Michael Schoessow, Palo Alto, CA)

2258 UTC on 4000

CAMEROON: Radio Bafoussam. French. Closing minutes of African highlife music. Multilingual IDs in French/English. Poor signal during brief news items, to sign-off routine. National anthem at 2308 UTC. (David Thompson, Houston, TX)

Special thanks to all our contributors. Keep it up folks.

Utility World

Larry Van Horn
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The Utility Hot 125

Getting started in the world of utilities can be puzzling for the newcomer. Those who have primarily been shortwave broadcast listeners are most often discouraged by the fact that utility stations don't always keep regular schedules.

You've got to park" on a utility frequency and wait. But the results can be worth it! Utility monitors don't wait to hear the news being read by an announcer at the top of each hour. Twenty-four hours a day, the ute listener can actually hear the news happen!

Here's the *Monitoring Times* "Hot 125" utility frequencies. Give them a listen.

2182	Int'l Calling and Emergency	6673	NOAA Hurricane Hunters	11396	International airlines
2638	U.S. Coast Guard broadcast	6683	Andrews AFB, Mystic Star	11398	NOAA Hurricane Hunters
2670	USCG Marine broadcast	6697	U.S. Navy Tactical channel	11494	USAF SAC A/G
2716	U.S. Navy Harbor common	6705	USAF A/G channel	12047.5	USN MARS Afloat channel
3023	US Navy Tactical channel	6723	U.S. Navy Raspberry channel	13113.2	USCG Marine weather
3123	USCG?USN Aircraft	6738	USAF A/G channel	13181	US Navy Hicom
3130	US Navy Tactical channel	6750	USAF A/G channel	13201	USAF A/G channel
4063	Miss River barge channel	6753	Canadian Forces channel	13214	USAF A/G channel
4069.2	Ship working channel	6761	USAF SAC channel	13241	USAF SAC A/G
4087.8	Miss River barge channel	6802	"Spy Numbers" broadcast	13244	USAF A/G channel
4112.6	Ship calling channel	6840	"Spy Numbers" broadcast	13247	USAF tactical A/G
4115.7	Miss River barge channel	6927	Andrews AFB, Mystic Star	13270	VOLMET Weather broadcast
4125	Ship calling channel	7335	Canadian Time/Frequency	13282	VOLMET weather broadcast
4136.3	Ship working channel	7527	US Customs Service	13306	International airlines
4139.5	Ship working channel	8291.1	Coast/Ship simplex	13354	NOAA Hurricane Hunters
4143.6	Ship working channel	8294.2	Coast/Ship simplex	13826	US Navy MARS
4467.5	Civil Air Patrol	8825	International airlines	13950	US Embassy/Latin America
4517	USAF MARS	8846	International airlines	13974	US Navy MARS
4593.5	USAF MARS	8864	International airlines	14325	Ham Radio Hurricane Net
4637.5	Offshore Petroleum	8891	International airlines	14384.5	Canadian Forces MARS
4670	"Spy Numbers" broadcast	8918	International airlines	14441.5	US Navy MARS Afloat
4722	RAF, flight weather	8972	U.S. Navy Atlantic	14470	US Navy MARS Afloat
4727	SAC channel Victor	8984	U.S. Coast Guard air	14686	DEA channel
4742	"Spy Numbers" broadcast	8989	USAF A/F channel	15000	World Time/Frequency
5000	World Time/Frequency	8993	USAF A/G channel	15015	USAF A/G channel
5015	Corps of Engineers	9014	USAF A/G channel	15035	Canadian Military weather
5320	U.S. Coast Guard	9027	USAF SAC A/G channel	15041	USAF SAC A/G
5550	International airlines	10000	World Time/frequency	17904	International Airlines
5598	International airlines	10051	VOLMET weather channel	17975	USAF SAC A/G
5616	International airlines	10493	FEMA, emergency net	18002	USAF A/G channel
5680	Int'l Search and Rescue	10780	NASA A/G channel	18019	USAF A/G channel
5692	U.S. Coast Guard Air	11176	USAF A/G channel	18027	Canadian Forces channel
5696	U.S. Coast Guard Air	11200	RAF, flight weather	18666	DEA channel
5703	USAF TAC Air	11214	USAF/NORAD channel	20000	World Time/Frequency
5812	"Spy Numbers" broadcast	11228	USAF A/G channel	20192	Space Shuttle Audio
6506.4	U.S. Coast Guard cutters	11233	Canadian Force channel	20631	USAF SAC A/G
6515.7	Ship/shore duplex channel	11234	RAF A/G channel	20885	US Embassy/Latin America
6518.8	Inland waterways	11243	USAF SAC A/G channel	21937	NOAA Hurricane Hunter
6521.9	Int'l ship calling channel	11246	USAF A/G channel	23220	USAF, flight weather
6577	International airlines	11267	US Navy Hicom	23337	USAF SAC A/G
6586	International airlines	11282	International airlines	23403	DEA channel
6604	VOLMET weather channel	11300	International airlines		

Numbers Stations Off?

At least one numbers station has reportedly signed off the air, a "victim" of thawing East-West relations. Here's the text of a report from the DPA new agency in Hamburg, West Germany.

"They were always preceded by a gong being struck several times. Then on shortwave -- a frequency of 3220 kHz -- one heard a synthetic voice speaking in a metallic tone: e.g. one, seven, five, three, eight -- combinations of numbers in groups of five conveying coded news from East Berlin to agents in the FRG [West Germany] and neighbouring foreign countries. Once again the routine broadcast was expected on Thursday evening by the FRG counter-intelligence service -- but it never came. The voice of espionage has fallen silent.

"The conclusion is drawn from this that East Berlin has now 'officially ended the activities' of its spies in the FRG, i.e. with its last radio messages... It either called back its 'spies' or ordered them to go underground and wait -- possibly to end espionage

altogether in light of the forthcoming unification of Germany..."

That report comes from the Caversham Park headquarters of the BBC Monitoring Service.

Alligator Playground

Several of you have confirmed my suspicions concerning these naval tactical words heard frequently on US Navy Shortwave tactical frequencies. Basically, it runs something like this.

Alligator is the term used by the Navy to describe its Link 11 computer links. One has to just listen to a Link 11 to understand why they call it an Alligator. This link is used by the Naval Tactical Data System (NTDS) which allows ships and aircraft to share tracking data on other ships and aircraft (i.e. -- radar contacts).

The term Alligator Playground is simply the net that is established when several units are linking their Link 11 data. Link 11 can be heard on HF/UHF and even via SATCOM (UHF).

East coast Navy listeners are probably familiar with 3130 kHz USB. In addition to being used by FACSAC Jacksonville, it is also used on the east coast for Link 11 coordination.

Some other terms you might hear in association with Navy communications include:

The U.S. Navy refers to radio communications modes via two primary ways:

- Playground - data channels
- Coordination - voice channels
- Green - secure voice (scrambled voice comms)
- Red - clear voice (voice is understandable, not scrambled)

Now if you hear the operator referring to a Romeo Charlie channel, he or she is talking about a voice channel in the clear. (Red Coordination is what Romeo Charlie stands for). If you hear the operator say Golf Charlie, that means the voice channel will be scrambled (Green Coordination).

Hope this helps new Navy listeners and I'd like to thank all the folks who wrote in with information.

New Facsimile Service

A Japanese fisheries research organization has begun issuing detailed information on sea conditions for Japan's international fishing fleet.

The Tokyo-based Japan Fisheries Information Service said that detailed reports including water temperatures, currents, tides, and weather conditions, will be sent out every ten days via the facsimile network of the Kyodo News Service. The transmission will reportedly begin at 0200 UTC for sea conditions on the north and south Pacific Ocean and at 0430 UTC for sea conditions in the north and south Atlantic and the Indian Ocean. No frequencies were given.

Customs vs DEA

Yes, yes, your editor is human. Real human, prone to mistakes as one of our readers has pointed out. After going back and checking it out I have allowed a trend to go on in the logging column which I should not have. What makes it bad is that I have been told this many many times when I first started listening to this type of Ute and I just flat know better. I appreciate the friend who brought this to my attention. In fact I'll let him explain and hope we all learn something from his expertise.

He starts out by saying, "I'd like to clarify a few misconceptions that continue to show up in some of your Customs/DEA loggings."

The US Customs Service (USCS) and the Drug Enforcement Agency (DEA) are not only separate agencies, but their basic missions, outside of CONUS (*that is Continental United States - ed.*), are poles apart.

The USCS has the responsibility of interdicting drug shipments coming into CONUS by land, sea or air. The DEA mission is primarily intelligence gathering as well as to lead, coordinate or participate in 'strike' operations against drug growing/processing facilities and organizational structures outside of CONUS.

The call sign 'Slingshot' in its early years was nothing more than a call sign for the Miami ARTCC. Today it is the voice of the combined USCG/USCS interdiction center at Miami, Florida.

Slingshot acts as the nominal command and control for all anti-drug airborne tracking/surveillance and seaborne interdiction operations in the southeast United States, Bahamas and the Caribbean. USAF aircraft and US Naval air/ships participate in these missions. They operate in a dual command mode: direct

input to and control by Slingshot, or via a liaison through their respective military controllers with Slingshot.

Routine ship stop/searches of small pleasure boats in the coastal SE USA and Bahamas, are carried out by a fleet of customs boats, which coordinate with the Customs/USCG-Blue Lightning Operations Center Miami (call sign Oceanside 300).

In the early 1980s the DEA had prime responsibility for interdiction in the Bahamas, under the code name OPBAT (Operation Bahamas and Turks). The DEA still conducts "on land" strike operations in the Caribbean, but has no direct role in the airborne surveillance and shipboard interdiction aspects. This is Slingshot's job. The only DEA station you will normally hear on Customs frequencies is Panther (plus occasional DEA helos on strike missions). All other DEA elements come through Atlas.

Atlas (Rockwell-Collins Comm facility, Cedar Rapids, Iowa) is merely a switchboard for the DEA. It is not a DEA Comm station. Atlas also provides switchboard services for elements of the US military services.

Almost all DEA related comms are of a routine administrative nature, such as air guard for DEA aircraft and providing phone patches for DEA elements. Actual DEA operational comms are transmitted in secure modes and on frequencies other than that used by Customs or Atlas. None of these DEA operations frequencies have been positively identified.

Atlas does have the capability of conducting comms on Customs frequencies, but rarely does so. Slingshot can and does use Atlas frequencies, when such operations directly involve the DEA.

The following are Atlas frequencies: 5227 5841 7300 9497 11076 14350 14686 14690 18171 18666 23402.5 and 23675 kHz USB. Any Slingshot or customs type comm heard on frequencies other than the above, should be labeled as Customs and not DEA.

Customs transmissions

On Customs frequencies you will often hear data type transmissions which last about five seconds. It can be followed up by two shorter duration data bursts, which then lead to actual two-way comms. This is an electronic digital call up/answering system, much like the ART SELCAL. All major Customs installations and most aircraft and vessels are equipped with this digital hailing mode. Customs uses the VP-100 and the military uses the KY-75, and all these pieces of crypto gear sound much the same.

The Customs communication setup is called COTHERN (Customs Over The Horizon Enforcement Network) and involves ten primary HF scan frequencies. Overall, Customs has direct access to over 50 HF frequencies. These are broken down into Tango, Victor, Whiskey, Xray, Yankee and Zulu two-letter designated frequencies.

Customs has two command and control centers. East coast is Slingshot and west coast is Hammer at Riverside, California. Customs has eight sector (regional stations and 17 air branches (all major air branches are located at US military bases), plus a variety of marine and specialized facilities (yep, I've managed to run across one of their out-of-the-way listening posts-ed.) plus ARTCC interfaces. Customs has about 75 to 100 fixed wing and helos in its air force and an unknown number of vessels including fast boats and their support ships. Although Customs utilizes an assortment of aircraft types, they have been progressively concentrating on Cessna Citations, Piper Cheyennes, Silorsky UH-60 Black Hawks and P-3 Orion/Sentinels for primary long-range tracking and surveillance and ground support operations. Customs has turned in their USN E-2 Hawkeyes for the airborne radar sentinels.

With that, I hope this has cleared up the DEA/Customs confusion I have exhibited recently. I'd like to thank my friend for his help and extend all our readers appreciation for this in-depth look at the DEA/Customs communications network.

Utility Loggings

Abbreviations used in this column

All times UTC, frequencies in kilohertz. All voice transmissions are English unless otherwise noted.

AM	Amplitude modulation	ISB	Independent sideband
ARQ	SITOR	LSB	Lower sideband
CW	Morse code	RTTY	Radioteletype
FAX	Facsimile	UNID	Unidentified
FEC	Forward error correction	USB	Upper sideband
ID	Identification		

- 2624.0 ASA1X discussing antenna problems and delivery of messages to the Essex County, New Jersey, area in USB at 0238. (Bill Burghardt, Denville, NJ)
- 3033.0 Singapore RCC heard here from 8942.0 in USB at 1220. (Bill Brinkley, Belmont, CA)
- 3444.6 Female 5-phonetic characters station, signal really distorted at 0245. (Burghardt, NJ)
- 4350.0 Net Leader 4 Foxtrot Zulu conducting radio checks in USB with Uniform Alpha Mike, etc. Instructed Hotel 9 (having trouble with reception) to "try to call Playground using call sign Tango Zero Xray at 2320. (Bob Hurley, Baltimore, MD)
- 4500.0 Net leader Alpha foxtrot Tango in USB working Zulu Whiskey Mike 2 and others at 0200. (Hurley, CA)
- 4602.5 Blackhawk 40 closing USAF training net (Ohio) with other Blackhawk units at 2345 in USB. (Neal Purdue, Madison, AL) *Region 3 CAP net-ed.*
- 4637.5 KFC699-Houston, Texas, is a fixed station working oil rigs, heard check-in at 0930 in USB with rig status reports. (Frank Mierzwinski, Mt. Penn, PA)
- 5055.0 Female three/two digit number station heard at 1935. (Hurley, MD)
- 5180.0 DOD Cape working the USCG Cutter Point Tampa and USS Saratoga. Both ships inquiring about weather and sea conditions for a shuttle launch. At 0315 in USB. (Frantz, GA)
- 5543.0 T43 trying to set up comms before going off shift and instructing SO2 on how to do it (Army) at 1420 in USB. (Brinkley, CA)
- 5696.0 US Coast Guard Rescue 1493 with traffic to NMN Portsmouth, Virginia, COMSTA and COMSTA Boston at 0746 in USB. Also heard Rescue 1496 working COMSTA Portsmouth and COMSTA Miami around 0855 in USB. (Kokinda, OH)
- 5717.0 Navy Atlantic tactical with 4Y at 1422 in USB. Old frequency was 5716.5. (Brinkley, CA)
- 5707.0 BF net control for O, A, N, BX3, BXAA, RGX1 and BXE1. BF single letter ID = R. Mentioned on track (I think this is a US Navy CIC to CIC communications heard at 1205 in USB. (Brinkley, CA) *For Bill and our readers, the Navy now calls CIC the CDC. (Combat Decision Center). Oh boy, something else for me to learn-ed.*
- 5836.0 F2V working Z7C with RTTY and radio checks in USB at 0230. (Frantz, GA)
- 6218.6 WRI-Jackson, Mississippi (Limited Coastal Station) working M/V Pocono at 2020 in USB. Also heard WQX682-Wynn, Arkansas (Limited Coastal Station) working M/V Superior and Harriet Ann at 2835 in USB. (Purdue, AL)
- 6221.7 This frequency sounded like a CB channel -- Marine conversations about docking, trauckers on I-340 and call signs as follows: WR449, KBY569, WQZ44 at 1250 in USB. (Brinkley, CA)
- 6515.0 Female five-digit number station in AM at 0233. (Russ Hill, Oak Park, MI)
- 6553.0 Faleolo Aeradio, Apia, Western Samoa with traffic for Nadi Aeradio, Fiji, regarding Polynesian Flight 744 (SELCAL FMBD) at 0844 in USB. Also heard Vila Aeradio, Vanuata working two regional aircraft at 0640 in USB. (Richard Albright, Merced, CA)
- 6585.5 "Drugs? Information on page 45 Fernando was it DVO (phonetics Dog Victor Oscar)? No, it was DVN (Dog Victor Nancy)." Talked about approaching 12 mile limit. All Spanish accents at 1320 in USB. (Brinkley, CA) *Bill, you are the new record holder for the most unusual log ever in this column. I assume that the stuff in quotes was on the air chat. Folks, the quotes are mine, the rest is total Bill.-ed.*
- 6683.0 Myslic Star comms between Andy and SAM 970 in USB at 1240. (Brinkley, CA)
- 6756.0 Air Force One in Toronto, Ontario, working Andrews AFB and Crown with a series of radio checks, some traffic including departure and ETA, an attempted phone patch for Mr. Petroling requesting to speak to Mr. McDonald in USB at 0221 to 0300. (Hill, MI)
- 6761.0 Jaildoor standby for traffic at 0743 in USB, repeated three times. who is this? (Tom Nichols, Indianapolis, IN) *Tom, this is SAC channel Quebec, very common to hear tac calls on this one. Probably it was an Airborne Command Post or Ground Station.-ed.*
- A whole bunch of logs with the usual tactical traffic at various times in USB. (Hill, MI)
- Two MAC aircraft 70161 and 7772 chit-chatting about where they would stay in Hawaii (one male and one female) chatted this a tanker frequency at 1330 in USB. (Brinkley, CA) *Bizarre, simply bizarre folks, they are going crazy in the Pentagon and the halls of the Air Force. What will happen next.-ed.*
- 6788.0 Hershey Control working Almighty and College City with 1525 in USB. (Frantz, GA)
- 6789.5 New Orleans Air (Coast Guard) with D7E. Haven't seen those frequency lists before. In USB at 1650. (Frantz, GA) *Guess what, neither have I. Wonder if D7E was Coast Guard or Navy. Mercy, another one to watch. Great job as always, Bill.-ed.*
- 6812.0 Air Force 2 working Andrews with traffic and signal check in USB at 2255. (Hill, MI)
- 6817.0 Andrews AFB (Andy) working SAM 681 conducting radio checks at 1530 in USB. (Frantz, GA)
- 6832.0 Seabreeze calling Fireball, no response at 1350 in USB. (Frantz, GA)
- 6835.0 26Q with 26 Repairman with brief radio checks at 1345. (Frantz, GA)
- 6840.0 Female Spanish four-digit number station in AM at 0236. Female English three/two digit numbers station, prefixed with Count 178 in AM at 2326. (Hill, MI)
- 7425.0 Bravo 31, Alpha 88, Hotel 17, Alpha 50 conducting radio checks at 0230 in USB. (Frantz, GA)
- 7525.0 Copper 41, 43 and 46 conducting radio checks in reference to shuttle launch activities at 1315 in USB. (Frantz, GA)
- 7547.0 Female English three/two digit number station in Am at 1400/9041. (Brinkley, CA)
- 7600.0 IODELA Guayaquil, Ecuador, with time pips around 0405 in AM. (Mierzwinski, PA)
- 7778.5 NF1 working KN5 discussing travel to Vero Beach, Florida, and radio checks. Listed as FBI frequency. First time I've heard anything on this channel. At 1315 in USB. (Frantz, GA) *Guess what, Bill, same here. Might want to check this regularly.-ed.*
- 8089.0 Female English three/two digit number station heard at 0215. (Burghardt, NJ)
- 8148.0 OVG8-Frederikshaven Naval Radio, Denmark, with CW V marker at 0241. (Emil Kasprzyk, Austin, TX)
- 8247.7 COMSTA Miami with M/V Atlantic Shell in USB at 1805. Atlantic Shell helping M/V Eastern Trader with pumps dropped by Coast Guard aircraft. (Frantz, GA)
- 8300.0 Female four-digit number station (Oriental language) at 1522 in AM. (Brinkley, CA)
- 8598.0 OXZ-Lyngby Radio, Denmark, with CW CQ marker at 0232. (Kasprzyk, TX)
- 8604.5 ZRH-Cape Naval Radio, South Africa, in CW with "DE ZRH" marker heard at 0229. (Kasprzyk, TX)
- 8649.5 ICB-Genoa Radio, Italy, with CW with V marker at 0217. (Kasprzyk, TX)
- 8677.0 CBV-Valparaiso Radio, Chile, with CW V marker at 0217. (Kasprzyk, TX)
- 8694.0 4XO-Haifa Radio, Israel, CW CQ marker at 0210. (Kasprzyk, TX)
- 8728.0 Two stations heard in the green. Then heard Singapore Radio

- setting up phone patch (High Sea Radio channel 809). (Brinkley, CA)
- 8810.0 Halifax Coast Guard in USB with iceberg report for western Atlantic, Gulf of St. Lawrence, at 1335. (Hurley, CA)
- 8846.0 Nauru Aeradio, Nauru Island, Central Pacific working air Nauru Flight 920 at Waypoint BULRO at 0808 in USB. (Albright, CA)
- 8928.0 Five-digit numbers station in CW at 0340. (Hill, MI)
- 8936.0 Unid foreign speaking possible aircraft phone patch (both males) did mention icing conditions and weather for New York. At end of conversation, female came on and said, "Have a nice day, bye in USB at 0342. (Hill, MI) *Probably Berne Radio LDOC.-ed.*
- 8942.0 Singapore, Manila, Hong Kong, Bangkok Radio's heard talking to various civilian and military aircraft between 1200 and 1330 in USB. (Brinkley, CA)
- 8993.0 MAC 90002 (C-5) requested phone patch with Kelly Reserve CP and Kelly Metro. Arriving Kelly 1920 local, maintenance status A-2, one civilian passenger, no cargo. Enroute from Roosevelt Roads to Kelly. I gathered from conversation the pilot wasn't too happy with the weather. At 2339 in USB. (Henry Brown, East Falmouth, MA)
- 9010.0 Halifax Military with coded message in USB at 0201. (Hill, MI)
- 9023.0 NJ732 (VAQ-129 a EA-6B) called Sierra Pete for extension of time in hot area (W-285) at 1930 in USB. Also Sidecar/Hedge Row/Rain Drop/Royal Sun (took 60K of fuel) at 1330 then Brewmaster working Edmonton completing a phone patch in USB. (Brinkley, CA) *Looks like the 9 MHz equivalent to 13247.-ed.*
- 9027.0 Peach Pie with coded message in USB at 0202. (Hill, MI)
- 9041.0 Female English four-digit number station at 1500/11415. Female English three/two digit number station at 1400/7547 (Sundays). (Brinkley, CA)
- 9053.0 NPEC with YTT09 giving directions for proper wiring, reading from a manual, etc. Very strong signal in USB at 1510. (Frantz, GA)
- 9350.0 VOA feeder double sideband reduced carrier-USB in French and LSB in English at 1530. (Brinkley, CA)
- 10344.0 Radio Moscow feeder in USB at 1430. (Brinkley, CA)
- 10450.0 Oriental female repeating "So ah e oh" at 1328, then IDed. I believe this is Japan's telephone company channel in USB. (Brinkley, CA)
- 10459.0 Piccolo type station heard at 1541. (Brinkley, CA)
- 10493.0 WGY912 working WGY914 (Canal Zone). WGY914 testing different antennas. Also heard WGY912 working Lifeboy. All stations went to 19969 for further testing at 1610 in USB. (Frantz, GA)
- 10778 FACSFA Jacksonville calling any station this net at 2005 in USB, no response. (Frantz, GA) *I didn't know they were here, Bill. You see this one listed before?-ed.*
- 11055.0 Air Force One working Andy setting up an RTTY channel on ch 67 and 144 at 2132 in USB. (Brinkley, CA)
- 11090.0 VOA feeder in LSB at 1712 and also VOA feeder using Kahn "Powerside" modulation (I wonder if they were just testing it?) USB very weak modulation, LSB very strong modulation at 1650. (Brinkley, CA)
- 11191.0 Two unid stations in the clear, said going green and did at 1422. Navy ASW (Anti submarine warfare) frequency (Brinkley, CA)
- 11234.0 Ascot 4182 (RAF Transport, SELCAL AKBL) with traffic for Haven Radio (RAF Ascension Island) at 0749 in USB. Both sides good and readable. (Albright, CA)
- 11243.0 Blue Thunder 99 working Overdraft first with authentication procedure then advised to QSY to Sierra 311 (knew your frequency/designator information would come in handy) in USB at 1934. (Kasprzyk, TX) *You are welcome, Emil.-ed.*
- 12215.0 Ambush working Warrior, running phone patches for family members at 0315 in USB. (Frantz, GA) *Very interesting, Bill. Was it crew they were running patches for. Never heard this kind of activity when tac calls involved.-ed.*
- 12300.0 Unid net leader transmitting a message in USB that "Lima Uniform 11 will be on ground at 1345." (Hurley, CA)
- 12990.0 Forward Support working Forward Operations conducting radio and antenna checks with strong signals at 1610 in USB. (Frantz, GA)
- 13247.0 WAR46 working FORMAT with brief radio checks at 1650 in USB. (Frantz, GA)

Sophisticated Monitoring

UNIVERSAL M-7000



If you are monitoring only voice shortwave stations, you are missing half the action! Thousands of shortwave stations transmit in non-voice modes such as Morse code, various forms of radioteletype and FAX. The Universal M-7000 will permit you to easily intercept and decode these transmissions. This is the most sophisticated surveillance decoder available. No computer is required. See the world of shortwave excitement you have been missing. From \$999.00.

UNIVERSAL M-900

For those desiring to copy the basic modes (Morse code, Baudot, Sitor A/B and FAX), we suggest the affordable M-900. From \$499.95

Huge New 1990 Catalog

The new Universal 88 page communications catalog covers everything that is new for the amateur, shortwave listener and scanner enthusiast. Equipment, antennas, books and accessories are all shown with prices. Available for \$1 postpaid.

Universal Radio
1280 Aida Dr. Dept. MT
Reynoldsburg, OH 43068
☎ Toll Free: 800 431-3939
☎ In Ohio: 614 866-4267

Universal has been serving radio enthusiasts since 1942. Visit our large showroom east of Columbus, Ohio.

- 13285.0 Worldways 641 working Edmonton LDOC reporting an ill passenger. Requested LDOC to contact York County (Ontario) Hospital and advise Dr. Nicholas. Plane due to arrive in Toronto at 0005. Heard in USB at 2242. Also heard Worldways 703 working dispatch bound for Toronto from Acapulco, reported 355 + 3 passengers. Required one wheelchair upon arrival at 0135. Heard at 2355 in USB. (Hill, MI)
- 13291.0 Gander ATC working TWA 703, QSYed to 13306 for company message. Heard 703 make one attempt to contact company on 13306. In USB at 1532. (Hill, MI)
- 13826.0 NNNOCRT calling NNNOPKH, contact lost. PKH made several unsuccessful attempts to reestablish contact. Started on 14441.5 in USB at 2341. (Hill, MI)
- 15026.0 178 working WM75 with brief radio checks at 1500 in USB. (Frantz, GA)
- 16463.1 WKLA-HMAS Adelaide (Royal Australian Navy Frigate FFG-01) with phone patches via Sydney Radio/VIS at 0750 in USB.
VLNN-HMAS Success (Royal Aussie Navy fleet oiler OR-304) with phone patches via Sydney Radio/VIS at 0745 in USB.
SMXH-TSS Fair Star (P & O cruise ship homeported in Australia duplexed on 12.336) at 0755 in USB. The ex-Silmar vessel had just left Port Vila, Vanuatu, and was bound for Mystery Island (?) and New Caledonia. (Albright, CA)
- Heard the following ships working Portishead Radio, England:
GKT62 in USB at various times
GHZW-British LPG Carrier (Maersk Captain)
HPWC-Panamanian Registered Crane ship (Pacific Instructor)
VTDM-Indian crane ship Samudra Suraksha
YJWN4-Vanuatu registered supply ship Mil Tide
9VKL-Singapore registered bulk carrier Lowlands Sunrise
Also heard KMI-Pl. Reyes, California, working the following ships at various times via USB:
P3GG2-Cypriot registered cargo ship Trinity Sierra
5BXR-Cypriot registered bulk carrier Axionestin
5MUE-Liberian registered bulk carrier Amazon
All heard by (Patrick O'Connor, Hinsdale, NH) Thanks, Pat.-ed.
- 17975.0 Stanman heard with radio check on Sierra-395 in USB at 1520. (Hill, MI)

The Scanning Report

Bob Kay

c/o MT, P.O. Box 98
Brasstown, NC 28902

Nuclear Scanning

Ten stormy years after the project was first begun, Seabrook Nuclear Power Plant in New Hampshire has finally begun operation. Due to public protests, Seabrook has probably become the most notorious U.S. power plant, but in this era of increasing concern over nuclear waste, it certainly won't be the last.

Our interest in the issue was sparked by a scanner buff who made a tape recording of the radio communications at the Seabrook Plant. Over a two week period the monitor captured the voice communications between the main control room and various technicians. After the tape was released to the press, it received national attention.

It captured yours, too. Many of you have asked for specific operating frequencies. Although the frequencies and guidelines below are for the Seabrook Power plant, readers are encouraged to explore these frequencies for possible activity in other parts of the country as well. If you live near a nuclear power plant and have been itching to get your nose past the "No Trespassing" signs, here's your chance.

The control room frequencies that were monitored and reported to the press are 451.025 and 451.225. Since that time, Seabrook has installed a voice scrambling device on both frequencies. However, there are plenty of additional frequencies that can be monitored. Let's begin by exploring Seabrook's public warning system.

Within a ten mile radius of the plant, there are sirens mounted on standard electric company utility poles. The sirens are activated by radio transmissions and there are five separate frequencies:

153.755	Newton	Area #1
153.800	Meridan	Area #2
153.935	Rocky Hill	Area #3
153.965	Colchester	Area #4
153.740	Torrington	Area #5

Siren maintenance is performed by a five man crew that operates on the following repeater controlled frequencies: 451.05, & 451.675. In addition to the sirens, there are trucks and vans which operate on 800 megahertz. These vehicles are used to alert the public to danger and to help evacuate the handicapped and elderly. Here are the frequencies:

851.1625	Traffic control
852.1625	Transport control
853.1625	Facility use
854.1625	Overflow frequency

The Seabrook plant also utilizes "RAD" teams that monitor radiation levels in the outlying communities. These teams can be monitored on 153.575. Radio checks can also be heard on this frequency between Seabrook and the Manchester control center, located in Manchester.

In Manchester, there is a power control center which routes power for several power companies. The control center uses 153.515 and 153.455 to contact repair crews that are working in the field. Office management can also contact the repair crews on the following frequencies: 158.130 and 158.250.

If there is a problem at the Seabrook plant, the utility must notify designated officials within 15 minutes. The notification is

*Have you ever
wanted to
peek beyond
the fence that
surrounds your
local nuclear
power plant? If
so, grab your
scanner and
go behind the
scenes with
Bob Kay.*



made on a radio pager system operating on 153.695. When this frequency becomes active, it usually indicates that an "incident" has occurred.

Incidents are classified according to the seriousness with regard to public safety. The following is a listing of the codes that are used:

- | | |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Delta 1 | Unusual occurrence. No unplanned release of radio-activity. No public action required. |
| Delta 2 | Unusual occurrence, with unplanned release of minute amount of radioactivity. No public action required. |
| Charlie 1 | Actual or potential release of small amounts of radioactivity. Key staff placed on standby. Monitor food, water and milk. Place public warning system on standby. |
| Charlie 2 | Actual or potential release of limited amounts of radioactivity. Activate emergency staff. Monitor food, water and milk. Consider placing milk animals on stored feed. Activate public warning system. |
| Bravo | Actual or potential release of large amounts of radioactivity. Activate emergency staff. Control food, water and milk. Immediate take shelter/access control for 2-mile radius and 5 miles downwind. Extend to 10 miles downwind if necessary. Evacuate 2 mile radius. Activate public warning system. |
| Alpha | Actual or potential release of large amounts of radioactivity with potential breach in containment. Activate emergency staff and accomplish directions contained in "Bravo." In addition, assess need for additional evacuation. |

The public is understandably skeptical of assurances issued by the power companies. Now, thanks to a lone scanner listener, we've been reminded that eavesdropping on the plant's own communications may be one way of getting to the truth. Simply punch a few of the above frequencies into your scanner and let me know what you hear. (Thanks to Scott Rice, Bob Murphy, Pete Delossa and many others for providing information for this article.)

Treasure Hunt

In case you haven't heard, the July/August Treasure Hunt is giving away two H/A 1300 Frequency Counters from Opto Electronics. This is your last month to enter, so hurry.

As most of you know, the 1300 H/A features 1 megahertz to 1.3 gigahertz coverage, and you can hide it in your pocket. If you're one of the lucky winners, I'll send the H/A 1300 to your doorstep with a set of rechargeable batteries. As soon as the unit arrives, you can turn it on and put it to use. The counter is ideally suited for picking up transmitted frequencies from both fixed and mobile radios.

To win, simply find the answers to the following clues: All the answers can be found in the May, '90 issue of *MT*.

- 1) Name the advertiser on the inside front cover.
- 2) "She was afraid he was going to get caught some day." On what page can that sentence be found?
- 3) During the *MT* Convention, the "Voice of Monitoring Times" will be broadcasting on what frequency?
- 4) I'm a military pilot flying through Texas. What frequency would I use to get the "Bergstrom, Metro weather?"
- 5) "Lower the numbers and raise your odds." Name the advertiser of this slogan.

Send your answers to the "Treasure Hunt," P.O. Box 98, Brasstown, N.C. 28902. Good luck.

Frequency Exchange

If the hot weather of August makes you feel uncomfortable, you may not like our first stop. An anonymous reader from Tucson, Arizona, has sent in the following:

155.01	Tucson Police, F-1
155.73	" F-2
154.725	" F-3
155.49	" F-4
155.17	Tucson Medical Center

Ready for a slightly cooler climate? Let's visit with Bill Renolds, in the state of Colorado.

Delta County, Colorado

155.34	Delta Memorial Hospital
155.29	" ", paging
155.055	Delta County Road Crews
154.995	Delta City Govt. & Undercover operations

Montrose County, Colorado

155.610	Sheriff F-1
155.640	" F-2
155.670	Sheriff F-3
155.460	Colorado Bureau of Investigation (CBI)
155.790	CBI
154.790	CBI
154.460	CBI
151.190	Wildlife Officer
856.862	Federal Express

Thanks Bill, for sharing your list. Our next state is Oklahoma. Ray Pierce, has provided his favorite list of hard to find frequencies:

Oklahoma

45.10	State Prisons
45.40	Alcohol Beverage Lumber
48.72	Weyerhaeuser Lumber
151.775	Frontier City Park

170.875/170.925	El Reno Federal Prison
460.675	TWA Airlines
460.70	Braniff Airlines
462.225	Western Electric
463.70	Protection Alarm
464.025	Fidelity Bank
464.825	State Fair Grounds

Still feeling hot and uncomfortable? If so, let's climb in a fighter jet and soar into the cool air above California. An anonymous contributor has sent in a three page frequency list for **Edwards Air Force Base**.

30.10	OSI Detachment
49.83	Dryden Research Center
138.05	Flight test
138.25	Flight test
138.90	Flight test
140.775	NIS Repeater
148.05	Base Operations
148.875	Security
163.5875	Explosive ordinance detail
173.5875	Fire and crash crews
236.600	Tower
269.200	Aircraft control frequency #5
286.500	Approach Control #9
304.000	Command Post
318.000	Tower
339.900	Flight test
340.900	Aircraft control
372.200	Pilot to Dispatch

The complete list features approximately one hundred and sixty frequencies. If you want it, send me a dollar with an SASE and I'll have it delivered to your mailbox.

Since we are already in the air and traveling at the expense of *Monitoring Times*, let's fly down to Maryland and check out the "Inner harbor," in Baltimore.

44.74	Air ambulance
155.025	National Aquarium (Tickets)
155.10	National Aquarium (Security)
158.925	Baltimore City jail
165.06	National Security Agency
167.66	FBI
167.74	FBI
413.075	Andrews AFB (Phone patch)
450.3125	WMAR TV
450.3875	WJZ TV
453.80	Airport fire crews
453.90	Airport police
461.775	John Hopkins Hospital Security
494.9875	Baltimore Convention Center

For those of you who are staying in Baltimore, don't forget to check out the following 800 megahertz frequencies:

856.2125	857.2125	858.2125	859.2125	860.2125
856.4625	857.4625	858.4625	859.4625	860.4625
856.7125	857.7125	858.7125	859.7125	860.7125
856.9625	857.9625	858.9625	859.9625	860.9625

Okay, that wraps up this month's Frequency Exchange. If you want us to visit your town, simply send in a list of your favorite frequencies.

G&G Communications

As you might guess, I get hundreds of flyers and advertisements in the mail. After glancing through them, they usually get tossed in the trash can. However, the Spring 1990 Flyer from G&G Communications was rather impressive.

According to the flyer, G&G specializes in scanner radio repair. They carry everything from cabinet parts to IC's. In addition to repairing scanner radios, they also sell scanner radio parts -- sometimes the entire radio can be purchased.

If you're still using an old Bearcat crystal controlled scanner, G&G offers approximately 400 different crystals for a variety of frequencies. Best of all, the crystals sell for \$1.00 dollar each!

To check out the other bargains at G&G, here's their address: 9247 Glenwood Drive, LeRoy, NY 14482, or phone-(716) 768 8151.

NOAA Weather Radio

Quick, how many NOAA Weather Radio Stations are there? The National Weather Service operates about 380 stations. Taped weather messages are repeated every four to six minutes and are revised every one to three hours--more frequently if needed.

During severe weather, forecasters can interrupt the routine weather broadcasts and substitute special warning messages. The forecasters can also activate specially designated warning receivers.

In 1975, the White House designated NOAA Weather Radio as the sole Government-operated radio system to provide weather warnings. NOAA radio broadcasts are made on one of the following frequencies: 162.550, 162.400, 162.475, 162.425, 162.450, 162.500, 162.525.

To learn more about the NOAA radio system, write to the National Weather Service, (Attn: W/OM11), National Oceanic and Atmospheric Administration, Silver Spring, MD 20910. Although the continuous broadcasts can be boring, the behind the scenes information is rather interesting.

Scanning Police Radar

A lot of readers have asked if they can receive police radar frequencies on scanner radios. Basically, it's a good thought, but it can't be done. Police radar frequencies operate on 10.525

SINCE TODAY'S HIGH-TECH EQUIPMENT IS SENSITIVE TO ELECTRONICALLY GENERATED NOISES AND VOLTAGE SPIKES, MANY ENTHUSIASTS HAVE BEEN PROTECTING EQUIPMENT BY OPERATING THEIR EQUIPMENT THROUGH SURGE PROTECTORS. IN MOST CASES, THESE DEVICES HAVE BEEN INCORPORATED INTO OUTLET STRIPS WHICH CAN ACCOMMODATE SEVERAL ELECTRONIC DEVICES AT A TIME. SOME MODELS ARE ALSO FUSE PROTECTED.

FOR THE PROTECTION IT OFFERS, ITS WELL WORTH THE INVESTMENT!



Northeast Scanning News:
212 W. Broad St., Paulsboro, NJ 08066

GHz (X-Band), and 24.125 GHz (K-Band). The two new frequencies in use are 13.45 GHz and 34.3 GHz. Since our scanner frequencies don't climb much higher than 1000 MHz, there isn't a scanner radio on the market that is capable of receiving the radar frequencies.

Aircraft Band Plan

Steve Miller, from Boston, Massachusetts, wrote in and asked if there was a "Band Plan," for civilian air frequencies. If you're an aero monitor and have been looking for the specific breakdown of frequencies, here it is:

118.000 - 121.400	Air Traffic Control Center
121.600 - 121.950	Ground Control traffic
121.950 - 122.675	Flight Service
123.100 - 123.125	Search and Rescue
123.125 - 123.450	Flight Test
123.670 - 128.800	Air Traffic Control
128.225 - 132.000	Airline company communications
132.025 - 135.975	Air Traffic Control
136.000 - 137.000	New frequency allocation (effective 1-1-90)

Omitted from the above list is the emergency frequency of 121.500. A few of the small landing field advisory frequencies have also been left out. If you live near a landing field that lacks a control tower, search between the following ranges: 122.700 - 122.825 and 122.975 - 123.075.

Cellular Monitoring

If you're monitoring cellular phone calls and the conversation cuts off in mid sentence, there's nothing wrong with your scanner radio. One reader, who asked to remain anonymous, thought that his scanner radio was in need of repair. Another reader asked if a different type of antenna would help to alleviate the problem.

When a cellular computer senses that a "cell" is becoming filled with conversations, it automatically switches the call to another cell. When the switching occurs, the parties talking cannot sense that they have been "handed-off" onto a new frequency. However, if you're monitoring the conversation, you know the instant it happens because the frequency changes.

To discover the new frequency, manually step your scanner radio through the band, and listen for two familiar voices. Generally, the hand-off's only occur during off peak periods. During business hours the cellular bands are filled to capacity and hand-off's are rare. Anyway, that's what folks tell me. I can't speak from first hand experience because cellular monitoring is against the law. By the way, does anyone want to buy a bridge?

Trunking Revisited

A large number of Police Departments are installing "Trunked Radio Systems." And many readers are writing to ask if the new trunked system can be monitored. The answer is yes. In the September '88 issue of MT, I wrote an article titled, "Trunk Busting Basics." For \$2.00 dollars, Grove Enterprises will provide reprints of specific articles. Write to P.O. Box 98, Brasstown, NC 28902.

To get started, simply load your trunked frequencies into two scanner radios. Lock-out the data frequencies and don't use the delay feature. Set the scanning speeds to maximum and listen to both sets at one time. It's a little tricky at first, but it works.

In the meantime, enjoy the last month of Summer and keep on scanning.

RADIOSCAN

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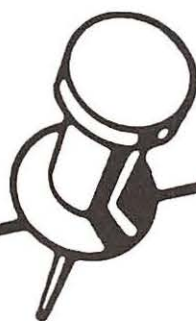
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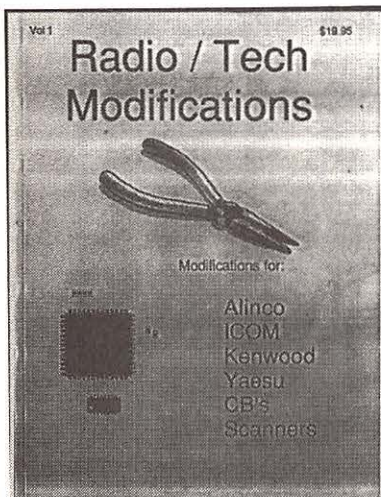
the Uniden HR2510 ten-meter transceiver (also illegal) and cellular restoration in the early-version Bearcat 200, 760 and 950.

Artsci includes a prominent caveat at

the bottom of every page disavowing any responsibility for accuracy, warranty avoidance, damage or liability incurred by the modifications.

Well over 50 rigs and modifications are included in this concentrated collection of mods; next time you attend a hamfest, better take this with you!

You can purchase *Radio/Tech Modifications* for \$19.95 plus \$3 shipping from Artsci, Inc., PO Box 1848, Burbank, CA 91507 and from Grove Enterprises, PO Box 98, Brasstown, NC 28902; phone 1-800-438-8155.



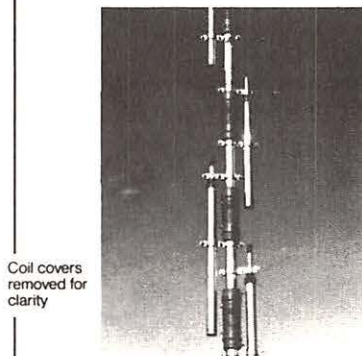
The Ultimate Mod Book

The temptation to get more out of a radio than you bought is irresistible, especially if the manufacturer provides for it. While it is not lawful to use an amateur transceiver to transmit on frequencies reserved for other services, many communicators do this routinely to save money and enjoy wide frequency coverage.

The fact of the matter is that the same radio circuitry may be certified for services other than amateur radio, and both MARS and CAP authorizations utilize amateur equipment outside of the ham bands. Manufacturers bow to these variances by offering easily-modifiable transceivers.

This well-illustrated modification manual is extremely easy to follow, assuming that the tech knows a soldering iron from a hair curler. Provisions are made for frequency range expansion of the most popular amateur transceiver models from Alinco, ICOM, Kenwood and Yaesu.

Additional information is included on CB radio channel and power increase (illegal in the U.S.), CB coverage on



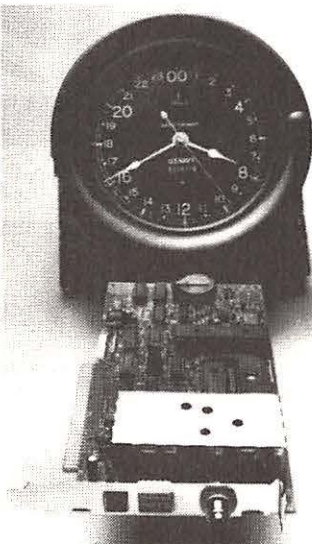
Coil covers removed for clarity

SWBC Antenna

Telex, a communications firm out of Minneapolis, Minnesota, has announced the introduction of a new vertical HF antenna for shortwave listening and amateur radio use. The new DX88 is an omni-directional antenna that works on any eight of the 12 international shortwave broadcast bands between 90 and 11 meters (3200 to 26100 kHz).

The DX88 has a height of about 25 feet and ground radials of 14 feet. It's constructed of thick-wall aluminum tubing with stainless steel hardware. The suggested retail price is \$299.00 from your favorite dealer. For more information

contact Telex Communications, Inc., 9600 Aldrich Avenue South, Minneapolis, Minnesota 55420.



WWV for Your Computer

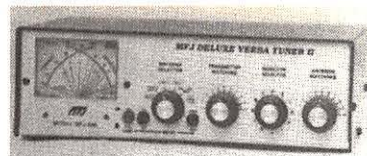
Plug the WWV board into your personal computer, install one of the optional active antennas, and keep your PC dialed into UTC time -- within 20 millisecond accuracy.

The WWV board includes a shortwave receiver and digital signal processing to bring in the station and extract the time code information broadcast by WWV and WWVH.

Interface software comes with the board which automatically updates your PC's DOS clock. The WWV Board (no. 10000) is \$225.00; the optional antenna (no. 10010) is \$50.00; both available from Personal Computing Tools, 17419 Farley Road, Los Gatos, CA 95030 or call 1-800-767-6728.

MFJ Antenna Tuner

MFJ has announced the release of their new MFJ-948 300 watt Deluxe Antenna Tuner. A 300



watt tuner that "tunes out" SWR for maximum power transfer to verticals, dipoles, inverted vees, beams, quads, mobile whips fed by coax, balanced lines, even single wire -- virtually any short-wave antenna from 1.8 to 30 MHz."

Features include lighted (with on-off switch) peak reading cross-needle SWR/wattmeter and 6 position antenna switch for selecting between two coax lines. The MFJ '948 checks in at just \$129.95 and is available from your favorite dealer or direct from the manufacturer at P.O. Box 494, Mississippi State, Mississippi 39762.

New 2-Meter Rig from ICOM



ICOM has released its new IC-229A/H 2-meter mobile transceiver. Covering 140 to 150 MHz with receive frequencies of 136 to 174 MHz, the '229A/H is designed to meet all of your 2-meter mobiling needs.

The '229H has a full 50 watts of output power while the '229A runs at 25 watts. Both units are small enough to fit anywhere, measuring just 5.5(W) x 1.6(H) x 6.1(D).

Well designed and illuminated controls offer operating versatility during night-time operation. With the new HM-56 microphone, you can transmit up to 22-digit telephone numbers using the 14 DTMF memory channels. It's ideal for autopatching and repeater control while driving.

For a free brochure on

the '229A or H, call ICOM toll-free at 1-800-999-9877. Suggested retail price is 449.00 for the "A" and 479.00 for the "H."

Mobile Scanner Antenna

Antenna Specialists has introduced a mirror/side mount mobile scanner antenna that is "ideally suited to trucks and motor homes." Model MON-70, an all-band antenna, can be attached to any vertical or horizontal support of the kind



commonly found on western-style truck mirrors. The flexible mounting system allows easy conversion to the side-body mount often used on motorhomes.

MON-70 comes complete with 17 foot coaxial cable and installed pin plug and retails for \$50.00. For more information visit your favorite radio dealer or call 215-349-8400.

Surveillance "How-to" Book

If you already have some basic electronics knowledge and would like a cookbook approach to audio amplifiers for surveillance work, *Surveillance Audio Amplifiers* by Mike Tyner is the book for you. Projects are built around a number of common, classical chips on



the market, most including reprints of the manufacturers' spec sheets.

A separate chapter examines and compares components -- pots, resistors, capacitors, headphones and jacks. Considerable text is devoted to empirical discoveries while developing useful circuits.

Tyner includes lists of manufacturers and sources for related material in closing chapters. His writing style is unique, combining tech-talk with flair. He will open a chapter with a line from "Clockwork Orange," flow into social commentary, and ease into the technical topic at hand.

Fun and informative -- especially if you're a spook.

Surveillance Audio Amplifiers by Mick Tyner is available for \$34.95 postpaid from Advanced Electronic Technologies, Suite 173, 5800A N. Sharon Amity Rd., Charlotte, NC 28215.

"Forbidden" Federal Frequencies

This book will be controversial. Most listeners will rejoice at the massive listings of federal and military frequencies, some quite sensitive, contained in the *Frequency Assignment Master File*; others will resent their being publicly published. The fact of the matter is that the feds know we listen in.

Well over 100 of those federal agencies, from the Central Intelligence Agency to the National Security Agency,

from the FBI to the Border Patrol, are listed. And the book isn't just for scanner listeners; shortwave frequencies are listed as well, including the elusive Mystic Star network.

No matter where you're located, you'll hear many of these frequencies. Alphabetized by department and agency and their locations, then listed in frequency order, this compendium is the handiest -- and most comprehensive -- reference for armchair monitoring of "forbidden" frequencies we've ever seen!

The *Frequency Assignment Master File: Volume 1 (Federal)* can be purchased from The Communications Research Counsel for \$24.95 plus \$3 shipping from Artsci, Inc., PO Box 1848, Burbank, CA 91507 and from Grove Enterprises, PO Box 98, Brasstown, NC 28902; phone orders 1-800-438-8155.

Book Blockbusters



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Grove SR-1000 Postponed

ICOM is not alone in facing extended delays in new product introduction. The long-awaited SR1000 Spectrum Surveillance Receiver has also been put on hold by Grove Enterprises. "Developmental costs skyrocketed above early estimates and the projected time for completion was much longer than originally expected," explained Bob Grove who first conceived the concept six years ago.

The SR1000 is undergoing an extensive design review and a decision regarding its future will be made shortly. "The Spectrum Surveillance Receiver will probably be considerably different from our present description," admitted Grove who would not speculate on when such a new receiver might be available.

To have your new product or book considered for review in *Monitoring Times*, send it to Editor, 140 Dog Branch Road, Brasstown, NC 28902.

The Beginner's Guide to Radio Jargon

Now let's see here... Where were we... A lot can happen in one month's time. Why, that's thirty generations of mayflies already. Heaven knows, like clockwork, those second and third notices on all those bills turn magically into final notice (Big Vinny is gonna break your thumbs) letters.

Weren't you working on a dictionary, Uncle Skip?

That's it. As we premised previously, we were somewhere in the middle of the "L" group as I recall. Since this is August, I suppose we should remember the obsessive compulsive nature of all those Virgo types out there and keep this allegory running in alphabetical order. Therefore, we have little choice but to return to...

Letters by the Numbers (Part II)

LSB

Remember last month when we talked about AM and how signals travel in waves? Well, each of those waves has an upper part and a lower part. Think of peaks and valleys (TWIN PEAKS? Great coffee. Ah, never mind.) I'll give more of an explanation when we get to SSB but for now, accept that LSB means Lower Sideband which is a particular mode of transmission you will hear a lot on the ham and utility bands.

LUF

You have probably already figured out that certain portions of the shortwave bands make for better listening at different times of the day. This is due in part to the Lowest Usable Frequency. The closer you get to the LUF, the higher the ratio of signal to atmospheric noise.

MARS

If you could get signals from the planet that would be real DX. But you can hear the Military Affiliate Radio System 'most any day of the week. This is a network of amateur radio operators who are best known for providing worldwide communication between military personnel and their families.

MHz

Here comes the Hertz guy again. This is the short form for one million cycles per second. Most shortwave listeners will find themselves needing to transpose between kHz and MHz because these are how HF frequencies are commonly reported. To convert kHz to MHz, divide by 1000 or move the decimal point three places to the left. To convert MHz to kHz you multiply by 1000 or move the decimal point three places to the right. If you can commit this little conversion system to memory, you will be able to ply the airwaves with noticeable aplomb.

MUF

The reason why it is possible to hear signals from so far away on the shortwave bands deals largely with the signal bouncing and skipping along the Ionosphere. The Maximum Usable Frequency is the highest frequency that will do this skipping action. The higher the density of the ionosphere, the higher the frequency. If you try to transmit at a frequency higher than the MUF, your signal will just go off into space. The MUF changes throughout the course of the day. Now you understand MUF and LUF and can make use of the propagation charts in the pages of *MT*.

QRM

"Q" signals are leftovers from the early days of radio when everyone used CW. They are abbreviations for common radio communications issues. For example, QRM, also known as one of the two Interference Sisters, QR-Mary refers to any human made interfer-

ence on or near the signal you are seeking. If you are happily tuning in BBC on 7135 kHz one evening and a ham starts transmitting CW on 7130 kHz, he is QRM to you. He probably thinks the BBC is QRM to him. So it goes in the radio world.

QRN

The second Interference Sister is QR-Nancy. This is all the naturally occurring static and noise that gets in the way of your listening pleasure. However, unlike human noise, it is pretty hard to ask a bolt of lightning to move 10 kHz up band. QRN is just there and we have to live with it.

QSL

The Q-signal's general meaning is "acknowledgment of receipt" of a signal or message. However, in broad use, it refers to a letter or card sent out by a station to verify reception of a station's broadcast. To get a QSL from a station requires that you send an accurate and polite report of what you have heard along with adequate return postage. You gotta play to win. May all your walls be covered with QSL cards.

QSO

When you have a sustained two way communication with someone you are having a QSO. Hopefully, this QSO will not be subject to QRM or QRN.

QSY

If someone changes frequency during their operation, they QSY to another frequency. If your QSO is blocked by QRM or QRN, you may want to QSY. See how these things can get out of hand?

QTH

QTH is the common abbreviation for Location. Your QTH is where you are standing because, no matter where you go, there you are.

A special note about Q-signals. Some amateur radio operators frown on the use of Q-signals outside of the CW mode. You will find this especially common if you monitor the 2-meter VHF ham activity on your scanner.

RDF

This stands for Radio Direction Finding. It refers to all the different processes someone would use to locate the point of origination of a broadcast or signal. You would use RDF techniques to discover a station's QTH.



SWLs can monitor MARS stations such as this one at Fort Monmouth, NJ.

RF

Compadre, this is what it all boils down to. Our hobby is the pursuit and enjoyment of Radio Frequencies. Most text books would define RF as all the frequencies between 10 kHz and 3000 GHz. If you want to take a look at the whole ball-o-wax you can send \$2.75 to the U.S. Government Printing Office, Superintendent of Documents, Washington, D.C. 20402-9329 for a copy of #003-000-00652-2 U.S. Frequency Allocations, the Radio Spectrum Poster 50 x 32.

RIT

This refers to the knob on some transceivers for Receiver Incremental Tuning. This gadget allows you to adjust the offset between a transmitted and received frequency, allowing for improved listening. Not of primary concern to an SWL except that if you are trying to copy two sides of a QSO you must realize that the signals may be separated widely enough to require retuning.

RTTY

Monitoring of Radio Teletype used to be a fairly esoteric pursuit requiring complicated and expensive mechanical terminals. The home computer has brought RTTY listening into most monitors' budgets. Normally heard as Bloops, Bleeps and Beedles. These signals require special equipment and skills that you can learn all about in Jack Albert's "Reading RTTY" column right here in *MT*.

SAC

My second favorite Jimmy Stewart movie (right behind "Harvey") is "Strategic Air Command." The Strategic Air Command is that branch of the U.S. Air Force that is out there 24 hours a day keeping our nation in a state of nuclear readiness. I know a guy who tunes the SAC "SKYKING" frequencies every morning to see if it's worth getting out of bed. Give a listen to 4725, 6761, 9027, 11243, 13241, 15041, 17975, 20631 and 23337 and hope you never hear anything too exciting. If you do, tune in FEMA (See last month's column.).

SASE

If you want to get along in the radio monitoring world you will have to become a habitual sender of Self Addressed Stamped Envelopes. Please use SASEs when writing the columnists here at *Monitoring Times*.

SSB

A standard AM signal consists of a carrier and two side bands (upper and lower). Some time ago someone figured out that you could design a circuit to suppress the carrier and one of the sidebands, allowing for more efficient transmission of intelligence. It allows for less space used up on the bands and more practical power. The signal comes over the air sounding like Donald Duck until it is

demodulated by your receivers BFO or product detector circuitry. SSB is mostly heard on ham and utility frequencies but some shortwave broadcasters have used this mode from time to time.

SWL

This will be the audience participation phase of this column. Listen carefully. If you own a radio capable of receiving shortwave and you have been known to listen to the stations heard on these shortwave frequencies, go into your bathroom and take a look at the person in the mirror. That, Compadre, is a Shortwave Listener. Some folks try to delineate between SWLs and DXers. Old Uncle Skip doesn't see any point in the distinction because us radio freaks should all be (as the Native Americans put it) "of one heart." People who concentrate on setting themselves apart just end up lonely.

TAC

Another branch of the U.S. Air Force is the Tactical Air Command. TAC ground stations identify themselves as Fireside or Raymond. Anybody out there know who this Raymond character is?

UKOGBANI

How many novice SWLs have gone nuts trying to hear this station only to run across BBC? Plain and simple, Bunky. There ain't no such animal. UKOGBANI is an abbreviation used by our own Glenn Hauser in his "SW Broadcasting" column for United Kingdom of Great Britain and Northern Ireland, the "legal/technical" name for Jolly Old England.

USB

Okay, we have LSB and SSB wired, right? So USB must be Upper Sideband. Most military and utility signals as well as all HF ham operation 14 MHz and above are done in USB mode.

USCGC

If you follow Larry Van Horn's "Utility World" column, you will run across this abbreviation for United States Coast Guard Cutter. That's those big white boats with the orange stripe going down the side.

UTC

As we said when we discussed GMT, Coordinated Universal Time is a time standard used around the world so everyone remains on the same sheet of music. Local time changes as you go from time zone to time zone. But UTC means the same thing everywhere. UTC is kept on a 24 hour clock.

VHF

Very High Frequency signals are those from 30 through 300 MHz. Scanners are

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designed to cover signals that occur in this band. There are also distinct differences between the characteristics of HF and VHF signals. For example, VHF signals don't usually bounce off the ionosphere as well as HF signals. Get the picture? VHF would be higher than the MUF.

Well, folks, that should give you enough knowledge of radio abbreviations and acronyms to be really dangerous. One piece of sound advice... when sending reception reports or discussing the hobby with someone who is uninitiated, Do Not Use Abbreviations. It is hard enough to make this hobby make sense to folks without shutting them down with jargon.

Having read and digested these many definitions, you are now honor bound to join Old Uncle Skip and all the other *MT* columnists at the Monitoring Times Convention, October 5-7 in Knoxville, Tennessee. It will give you a great practical test of your knowledge of abbreviations.

By the way, next month's column will be a special Beginner's Guide to attending the MT Convention. Make your reservations and stay tuned. UNCLE SKIP WANTS TO SEE YOUR FACE IN THE PLACE!



The NAVSPASUR Umbrella

Hour after hour, day after day, a drama is being played out right over your heads. You don't know it's happening, but some real dedicated folks keep track of things. In fact, they keep a score sheet and publish their results for the public.

"Just what is this drama you say?"

It's a modern day version of the Chicken Little principle. Satellites and space debris re-entering the earth's atmosphere from space.

Since 1959, the Navy (yep, that's right, the Navy) has operated three powerful transmitter stations and six receivers pointed straight up. The U.S. Naval Space Surveillance System or NAVSPASUR as it's known in governmentese, is an electronic "fence" stretching 3,000 miles across the southern United States from Georgia to California. This energy field reaches 6,000 miles into space.

The transmitter sites are located at Gila River, Arizona; Lake Kickapoo, Texas and Jordan Lake, Alabama. The receivers are at San Diego, California; Elephant Butte, New Mexico; Silver Lake, Mississippi; Red River, Arkansas and Fort Stewart and Hawkinsville, Georgia.

Each transmitter station sends out a continuous wave of radio energy in a fan-shaped pattern with a narrow north-south dimension and a wide east-west spread. This creates the "fence" -- a vertical east-west fan of radio energy extending thousands of miles into space. When a satellite or piece of space debris passes through the beam, energy is reflected back to the receivers.

The receiving stations measure the reflected satellite signal and send their data to the system's operation's center and headquarters at Dahlgren, Virginia, where the signals are processed by high-speed computers and the position of the satellite is precisely determined.

At this point it is sent to the Space Defense Operations Center or SPADOC (more government talk) deep in Cheyenne Mountain where it is used -- along with data from other sensors -- to determine where the satellite has been, and where it will be on successive revolutions.

Now if you live in the east-west fan-shape of the NAVSPASUR transmitters (look at a map and draw a line through the receiving stations) and you own a quality VHF/UHF multimode receiver like an ICOM R-7000, switch to CW and window frequency 217.0 MHz. Also point your antenna straight up. You might be able to hear bings coming back from objects penetrating the "fence" from space objects. Many thanks to the boss, Bob Grove, for the note concerning

NAVSPASUR.

Now you, too, can be like the folks at Elephant Butte and can say, "I can hear the sky falling."

Hey Toro, Toro, Toro

MT reader Bill Robinson out on the left coast (that's west coast, folks) sent in a list of frequencies he listens to from the Marine Corps Air Station, El Toro, California. Bill says he monitors this bunch on a daily basis.

139.1/271.7 MCAS El Toro Tower
138.950 Military Police net
139.500 Search and Rescue net
139.550 Fire/Medical net
140.100 Crash crews (ground)
140.575 Crowd control (at an air show?-Rod)
148.350 Taxi/EOD (what a combination-Rod)
148.400 Fuel Trucks
120.450 ATC Ground Control 162.125 repeats
124.100 ATC Coast Approach/Departure
132.700 ATC Coast Approach/Departure
126.200 Tustin Tower (USMC Helo Station)

Thanks for the comments, Bill, and you might want to try a few of these frequencies I have found in my federal files for El Toro and the immediate area:

284.2 MCAS El Toro ATIS (Automatic Terminal Identification Service) Also 177.2
383.8 MCAS El Toro Ground Control
360.2 MCAS El Toro Tower
301.3 MCAS el Toro Clearance Delivery (paired with 120.45)
344.6 PMSV:Metro (weather briefings)
328.1 Single Frequency Approach (SFA) Pilot-to-dispatcher
323.1 Coast Approach/Departure (paired with Bill's 124.1)
380.2 Coast Approach (paired with Bill's 132.7)
343.9 Coast Approach (paired with 124.65)
253.1 Coast Approach (paired with 121.3)
281.4 Coast Departure (paired with 128.1)
272.9 Restricted Area 2507/Laser Control Primary
386.8 Restricted Area 2507/Laser Control Secondary
310.7 MCAS El Toro Base Operations

291.7 ARTCC Los Angeles Center (Also 278.5)
271.8 Yuma Approach/Departure Control (Also 374.8 314.0)
361.2 MCAS Yuma Control Tower (Also 119.3 126.2 382.8)
336.4 MCAS Yuma Clearance Delivery (Also 118.0)
340.2 MCAS Yuma Ground Control (Also 121.9)
273.2 MCAS Yuma ATIS
337.9 MCAS Yuma Command Post/Target
349.9 MCAS Yuma PMSV: Metro (weather briefings)
285.2 San Diego Approach Control
336.4 NAS North Island Control Tower
255.4 Imperial Beach Flight Service Station (FSS)
289.8 Panel Stager
358.6 Rakish Letter
264.2 Inky Barley
265.8 Kitty Baggage
279.2 Hasslebase Primary
272.3 Hasslebase Secondary
281.3 Hasslebase Tertiary
305.0 Loom Lobby
283.2 Shadetree
248.4 Cibola (YPG)

Again, thanks, Bill, for the list and I hope mine helps. If you get any updates out that way, be sure to pass them along.

Wants To Check Out the Action

Most folks don't realize it, but Gorbachev is not the only Russian who routinely visits the United States. Russian aircraft are frequent visitors to the east coast of the United States. In fact, during a recent two week period, fighter jets from the 125th Fighter Interceptor Group up in Jacksonville scrambled four times. Florida Air National Guard officials said the Russian planes were off the Florida coast "snooping around."

The 125th Fighter Interceptor Group is based at the Jacksonville International Airport. According to Major Craig McKinley, the 125th air operations officer, "During one recent noon intercept, he spotted two Soviet TU-95 Bear reconnaissance bombers."

"We don't want to get the public alarmed. They are not flying over Pondera Veda [a very nice Florida beach] or anything like that," McKinley said. According to Air Guard officials the recent rash of Bears-in-the-air are the first since March 1988.

MT reader and Florida neighbor George

Bortle in Titusville, "Wants to check out the action." What frequencies should we monitor for the 125th Fighter Interceptor Group from Jacksonville?

For George and other readers in the southeast, when the 125th is chasing Ruskie's, they are working for NORAD. Therefore a good spot to check for intercept chatter is on the following SE US NORAD channels: 228.8, 234.7, 238.5 (air to air), 251.0, 256.6, 263.2 (tactical), 270.4, 275.0 (air to ground), 278.6, 287.8, 292.7 (aerial refueling), 298.5, 302.4, 306.4, 325.5 (air-to-ground), 338.4, 344.0, 356.0, 364.2 (primary), 369.0, 375.1, 386.2, 392.8.

The ground control station call sign for these missions is "Oakgrove." They are located at Tyndall AFB, Florida, and use remote sites up and down the Atlantic and Gulf Coast to direct their radar and radio operations with NORAD intercept aircraft.

George might also want to check out the refueling track frequencies used along the Florida coast for the 125th pilots. They commonly use AR (Aerial Refueling Track) 655 just east of Florida. There are two groups of tankers that usually service this track. The call signs and frequencies are as follows:

AR-655 Refueling Track

260.2 Primary "Soto ##" KC-10 tankers
366.3 Secondary

322.8 Primary "Paco##" KC-135 tankers
288.9 Secondary

You can also check the following frequencies for Florida F-16 activity, they do chit-chat on these from time to time: 300.8, 236.4, 251.9, 268.9, 271.5, 292.9, 295.3, 309.2, 339.7, 361.0, 383.4, 40.90.

Thanks for the letter, George, and I appreciate the list of Central Florida frequencies. I will try to run those in the very near future.

Listens to the Grove

No, Evan Roth hasn't bugged *Monitoring Times* headquarters (or has he?). Anyway, Evan lives up in Pennsylvania and has sent a list of frequencies for the "Grove," NAS Willow Grove, that is.

123.8 ATC Approach
121.8 Ground Control
119.6/340.2 Control Tower
46.85 Air National Guard Operations
138.9 USAF Reserve
32.45, 34.55 US Navy
46.75, 141.8 Air National Guard

Thanks for the list, Evan, and here are a few more to add to your list for the "Grove."



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46.85, 343.0 ANG Operations
351.2 AFRES Operations

FEMA Heat

Yes, it's the hot summer time down here in Florida and one of my "friends" has felt the Florida heat. Several years ago he was at a major operation at a Florida nuclear power plant that involved the Federal Emergency Management Agency or FEMA. It was a full scale disaster drill (*real reassuring living here in Florida-Rod*).

It involved hundreds of people and took several weeks to play out. In addition to FEMA, some of the following agencies were involved: FBI, DoD, DoE, NEST, EPA, WHCA, USCG, FAA, National Weather Service, and several agencies within the state of Florida.

Well, he got a look at the FEMA comm book. Now if you are into shortwave utility listening, check out Bob Grove's *Shortwave Frequency Directory*. The frequencies for FEMA HF check out in Bob's book. It also has a FEMA Region map which will be

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II	139.825	143.000	142.925
III	139.950	143.250	142.925
IV	139.450	142.425	142.400
V	138.575	141.950	140.925
VI	139.950	142.975	143.625
VII	140.025	143.000	140.900
VIII	138.575	141.950	140.925
IX	139.825	143.000	142.375
X	139.950	143.250	142.375

NATIONWIDE (All regions, for use in actual disasters only)

138.225 141.875 141.725

helpful with this next list.

Many thanks to my "Friend" and hope he checks in often. It is truly appreciated. He also mentioned while scanning an official telephone book for a large government contractor, he came across an interesting telephone area code. It's 710 and it is listed for the United States Government. A check with the operator says the 710 area code doesn't exist. I agree it is very interesting.

Well, it's time for a cubo on the rocks, it's very hot, in fact, it's FEMA hot. CU in 30.



HF Aero Bands: An Overview of Transmissions

Air Traffic Control

Air traffic control radar coverage is limited to coverage of approximately 250 miles maximum; consequently, it cannot track aircraft flying over the middle of an ocean 2,000 miles from land. However, these aircraft still have to maintain their assigned altitudes, headings, tracks, and so forth even after they leave radar coverage.

Quite obviously -- although they can't see them on radar, the ATC facility through whose region they're flying has to be able to know where they are and what they're doing. So for further clearances, directions, and instructions to aircraft out of radar contact, Aeronautical Enroute Ground Stations (or International Flight Service Stations, as they are called in some countries) will relay this information from ATC facilities. Conversely, they also handle requests for altitude and course changes, deviations from flight paths, etc. from aircraft to an ATC facility, who will either grant or deny requests, depending on other traffic.

But aero enroute ground station operators, who perform these functions between aircraft and ATC, do not directly control air traffic. They are the middlemen who make sure that very important information and data goes from the originator on the ground to the recipient in the air and vice versa.

The easiest way to tell the difference whether you're hearing regular Air Traffic Control (Center or Terminal) communications and a relay of their instructions by another party is this: If an Air Traffic Control clearance is given directly to a flight, the Controller will say to the pilot: "American 20 is cleared to climb (to) and maintain flight level 340." However, if you hear "ATC clears American 20 to climb (to) and maintain flight level 340; report reaching," you are listening to a relay of instructions by a non-Air Traffic Control station from an ATC facility to an aircraft.

Aero Enroute Ground Stations can be privately operated, as in the case of ARINC which is owned by the airlines it serves. They can be government operated as is the case in many countries. There are even some joint ventures between government and private companies operating these stations.

In the United States, as well as in about three-quarters of the world's countries, Air Traffic Control utilizes VHF, with HF used only in oceanic areas. Sometimes, you may hear an aero ground station patching through a controller from an ATC facility to an aircraft in certain situations which require a direct but brief contact. Incidentally, civilian aircraft cannot utilize HF transmissions over the

continental US, unless their VHF radios are completely unusable.

When an aero enroute ground station operator needs to contact a flight, he will use SELCAL (SElective CALling), which is a selective tone paging system. In almost all of the free world countries, most international airliners are so equipped with SELCAL receiving equipment and each unit on board has its individual tone pairs so that the proper flight will be contacted.

Each component of the tone pair is made up of a mix of two tones and the four tones of the SELCAL code which are needed to page an aircraft are identified as letters of the alphabet -- for example, AMGB, which would be translated using the international phonetic alphabet as Alpha Mike Golf Bravo. The ground operator types in the desired code for the flight he is attempting to reach and a chime will sound on the receiving equipment located on the aircraft's flight deck.

Unfortunately, sometimes more than one aircraft's SELCAL unit had the same code and the wrong flight has responded. If an airliner is not SELCAL equipped -- or in a part of the world where it isn't available, the pilot will have to maintain a listening watch on his radio to make sure he doesn't miss any transmissions meant for him. As those of us who also monitor the VHF aero bands know, SELCAL paging is utilized by company stations, as well as ARINC, Atlanta Flight Support, etc. on the frequencies between 128.825 and 132.000 MHz. It is not used by Air Traffic Control Centers, or terminal facilities.

In the April issue of *MT*, Larry Van Horn (Utility World) gave an excellent explanation and example of position reports by enroute aircraft to ground stations on the HF aero bands, so we can skip over those and touch on other kinds of transmissions to monitor.

VOLMET Broadcasts

A contraction of the French for "flying weather," VOLMET stations transmit airport forecast conditions for various parts of the world on designated frequencies and repeat several times each hour, changing only as the conditions are updated. You'll find that usually several stations will share the same frequency and repeat in sequence. Incidentally, these are transmit only stations. Some VOLMET stations will verify reception reports (remember to send an IRC for return postage).

LDOC Stations

The transmissions on the LDOC (Long Distance Operational Control, pronounced as EL-DOC, for short) frequencies can be

extremely interesting and are certainly varied in content. Some LDOC stations are run by the airline companies themselves and provide services for other airlines as well as for their own flights.

In other instances, an airline company will opt to use one of the contract services, such as those that Rainbow Radio, UK Radio, ARINC*, Houston Radio, and others provide for LDOC purposes. They, in turn, will route the information to/from flights and the airline's home base or wherever it's intended to go. Keep in mind that on some airline-operated LDOC stations, the language of the country where the airline is based will be used during transmission instead of English.

International airline companies utilize LDOC stations for contact with their various flights and vice-versa. Usually, if a pilot needs to get in contact with his company, he will call up an LDOC enroute ground station and either request the operator to relay the information or request to his company, or ask for a direct phone patch. The transmissions will concern arrival and departure times, aircraft maintenance status, flight management advisories, inflight problems, alternate airport selections, catering, special requests for passengers upon arrival at their destination (wheel chairs, etc.) crew status, re-dispatching, and other matters.

Several LDOC stations will usually share frequencies. As an example, stations from Hong Kong, Jakarta, Sydney, and London are found on the frequency of 8921.

The types of voice transmissions listed above are only a small sampling of what you can hear on the HF aero bands. There's lots more -- including some airlines who still use CW (as well as voice transmissions) for their communications purposes. As pointed out in this column previously, there are several books available that will provide current listings of HF aero communications frequency usage. Also, this writer has frequency charts which include info as to which part of the world they're utilized and by whom. In addition, I have some for those airlines and LDOC stations who use frequencies out of the usual allocated bands. Just send an SASE (business size envelope) to me at the above address and advise as to which list(s) you'd like to have.

Familiarity with aero comms monitoring comes about in time -- don't try to gobble all the information, frequencies, etc. at once. You won't get indigestion, but it may result in too much input to sort out and that's overkill.

*ARINC provides LDOC services as well relaying ATC info to and from flights in progress. These are found on separate frequencies, however.

Reader's Corner

Now let's hear from Bob Bell, Plane Talk's new correspondent from Australia. Bob is a freelance writer who also produces a feature called "On the Airbands" for the magazine *Australian Aviation*. He'll be contributing information regarding aviation communications among other aeronautical items of interest from Australia and elsewhere.

In addition to writing his column, Bob is a member of the New South Wales State Police and is a Senior Constable in rank. He lives near Sydney Kingsford-Smith International Airport, which having 13,000 feet of main runway (16), can accommodate just about any size aircraft.

Sydney Sky Coms is a dedicated phone patch service for airliners on HF, and is operated by Sydney Maritime's Overseas Telecommunications Commission, which runs all of Australia's Marine Coast Stations as well. The frequencies in use are 4666, 8930, 11342, 13300, 17940 with backups of 3007, 8903, 8936, 10072, and 17934.

This service is presently being utilized by aircraft around the Australian continent. One of its uses is for flights who want to check re-dispatch figures with their operations headquarters, and for other reasons. Up until late 1988, when the service came into being, there were no accommodations for airline phone patches in Australian airspace, so they provide a very valuable and necessary service.

One morning, Bob relates, he heard a QANTAS pilot calling SKYCOMS asking them to patch him through to an Adelaide phone number (Adelaide is about 1,200 miles to the southwest of Sydney). The operator connected the pilot and -- well, let's let Bob tell it: "I swear on a stack of bibles that the pilot's conversation went like this: 'Arr, hi mum, look, I'm flying over your house on the way to Melbourne. No, I'm not kidding, we're passing over you at 37 thousand feet. Look, stick your head out the kitchen window and see if you can see our contrail.' Mummy did. I couldn't believe it. They use the service like a personal phone or a CB at times."

(Just as soon as I was able to stop laughing after reading this in Bob's recent letter, I wrote to him saying that it's not uncommon for monitors in the US to hear pilots asking for ball game scores and the like on VHF LDOC and airline company stations. Occasionally, this writer has even heard a pilot or two asking the operator of his company station where to find "some fun places to go" on layovers in different cities.)

When the Australian domestic pilots went on strike, the airlines -- with the backing of the government -- have allowed many foreign carriers to come in on charter and operate their domestic sectors to make up the numbers. Several American based airlines got in on this and Bob was able to hear their company designators (e.g. "Cactus"-American West,

etc.). Company designators are not used by domestic carriers in Australia. They have to use their registrations on the air such as Ansett's B.737.300 VH-CZM, which is known as Charlie Zulu Mike. However, Qantas and others who fly internationally are allowed to use their call signs/designators.

Bill Battles (Kingston, NH) says that Tim Braun (former SSBulletin Editor/Publisher) has been hearing an airline company freq on 8100, (around 1200-1300 UTC) very active, and sounding as if it's located in the southeastern part of the country or thereabouts. So far, this writer hasn't been fortunate enough to catch anything on that freq as weekends are the only time I'm able to listen at that hour -- how about any other monitors? We'd like to hear from anyone else who's logged transmissions there.

Listen for air/ground transmissions from NOVAIR, the new HF LDOC station from London (England), working aircraft on 11363, 10021, and 6556. Peter Conway (England) sent these freqs to Bill who shared them with us.

Phil Jarrett (Long Beach Naval Station, CA) sent us some info about the WIN-108 Air Band Digital Scanner, manufactured by Win Industries of Japan. It's a hand-held programmable unit, imported by Boda's Aero Mart, 3930 Campus Dr., Newport Beach, CA 92660, 800-678-2632. At \$169.95, Phil says it's a real winner (no pun intended). The specs on this little goody are the Navigation Frequencies: 100 channels in 50 kHz steps (108.000-117.950) and the Communication Frequencies (118.000-135.795) are 720 channels in 25 kHz steps.

Equipped with microprocessor controlled PLL circuitry, the WIN-108 stores up to 20 freqs for scanning in two memory banks -- ten frequencies in each bank. Direct



DATAMETRICS COMMUNICATIONS MANAGER

SCAN MEMORY FILE					
Filename: MONITOR.FRQ					
Parameters			Status Indicators		
Longest duration:	0	Frequency:	800.8000		
Minimum duration:	0	Signal:	OFF		
Delay:	2	Time:	08:42:51		
Autolog (Q,S,D):	0	Monitor time:	1.05		
Bounceback:	0	Scan rate:	9.65		
Air rescue command channel					
800.0000	800.1000	800.2000	800.3000	800.4000	800.5000
800.0100	800.1100	800.2100	800.3100	800.4100	800.5100
800.0200	800.1200	800.2200	800.3200	800.4200	800.5200
800.0300	800.1300	800.2300	800.3300	800.4300	800.5300
800.0400	800.1400	800.2400	800.3400	800.4400	800.5400
800.0500	800.1500	800.2500	800.3500	800.4500	800.5500
800.0600	800.1600	800.2600	800.3600	800.4600	800.5600
800.0700	800.1700	800.2700	800.3700	800.4700	800.5700
800.0800	800.1800	800.2800	800.3800	800.4800	800.5800
800.0900	800.1900	800.2900	800.3900	800.4900	800.5900

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* Comprehensive manual includes step by step instructions and screen displays

* Extends ICOM capabilities including autolog recording facilities, 1000 channel capacity per file, and much more

* Overcomes ICOM limitations such as ineffective scan delay

* Utilizes Datametrics FRQ format for scanning

* Requires ICOM R7000 and IBM PC with 512K RAM and serial port

* Manual available for system evaluation at \$15

keyboard entry, LCD Display (lighted), Scan, Search, Memory Lockout/Restore, Priority Memory Check, Keylock Switch, Auto Standby Mode, Battery Low Warning. It comes with a 20 cm Helical flexible rubber antenna with BNC connector and uses 4 AA or equivalent batteries. (Phil says he gets about 30 hours of use out of 4 AA penlite batteries before replacement is necessary.) Optional power: plug-in equipped for optional 115 VAC/6VDC external power source. (You can buy the power supply for an additional \$8.50.)

Bear in mind, however, this scanner only receives the VHF Airbands. For those of us who want a receiver which has this single feature, it's an ideal piece of equipment. The WIN 108 is perfect for taking along on vacations, listening to a/g transmissions at airshows, and for monitoring when you have time to kill sitting around in airports between flights. Wouldn't it be great to bring along to the MT Convention this October?

By the way, I stand corrected by reader Vern Marler in regard to the table of HF frequencies used by aircraft throughout the world. The ones shown in our April column were those for civilian aircraft usage and military flights for other than tactical purposes. In actuality, some bands are exclusively used by the military and others are shared by both military and civilian aircraft for a/g transmissions. However, since this writer does not have an extensive knowledge of military aero comms, we will generally refer to civilian airlines and their communications.

That's it for now. Next time, among other subjects, we'll examine some problems caused by aviation phraseology/terminology usage when they differ from country to country. Also, there will be a look at a large International Airport and other items of interest.

Until then, 73 and out.



Amateur Radio PR

If you have been following "On The Ham Bands" you know I advocate getting more Ham Radio news in front of the general public. For the most part when something of general interest happens in our hobby the only place you hear about it is in the Radio Press. If more of these interesting goings on could be presented to John Q. Public I am sure amateur radio would begin to grow again.

There are presently several items of interest going on in amateur radio that could catch the interest of the world if they were featured in a magazine such as *Time*, *Newsweek*, *Parade* or any of the other news publications.

Later this month when the space shuttle blasts off every amateur in the world will have an opportunity of talking to it. STS 35 is carrying a live radio amateur who will be contacting stations everywhere on two meter FM. There is also a robot amateur station aboard that will hand out contacts on two meter packet.

In addition, four of the astronauts who will be flying on STS 37 have recently acquired their Ham tickets! How about interviews with them? Tell everyone who will listen what they like about ham radio, how they view it and the potential our hobby has -- not only for talking to other like minded individuals around the world, but to create interest in technology in those who enter the ranks.

Very few people outside of amateur radio know that we have been chatting with the MIR space station. Or that amateurs talk to other amateurs all over the world by way of satellites built especially to carry our VHF signals from earth to space and back to earth.

How about Oscar 18? This satellite is carrying a camera that is taking photos of earth and anyone with an interest is able to view these photos directly from the space craft. There are many other interesting projects going on in amateur radio; but only amateurs know about them!

Surely there must be some amateurs in Public Relations who can help change the deplorable state of affairs. Considering the number of amateurs who work in broadcast (radio/TV) and for magazines and newspapers someone must be able to help us out of the muck (or murk)!

The *Archie* comic book put out as the cure for ham radio's doldrums sure has not done much to improve things. Aside from being boring it simply did not get into enough hands to be of any value. Perhaps someone could convince the powers that be to write ham radio into the script of "Mutant Teenage Ninja Turtles." "COWABUNGA DUDES!"

You amateurs in public relations, put on your thinking caps; It's time ham radio blew its own horn out where the public can hear it!

Did you know

There are 1,974,000 hams in the world? The amateur population of the top ten countries being:

Japan	951,937
USA	467,305
Indonesia	60,280
W. Germany	59,931
United Kingdom	55,000
USSR	52,241
Spain	40,848
Italy	28,004
Brazil	26,100
Canada	23,703

DX

The 1S0XV Spratly DXpedition operation has been OKed for DXCC credit.

KA1BWF has been active as /9M6 from East Malaysia on 14226 SSB at 1100UTC. QSL via DJ9ZB.

VK2EY is on Tokelau (ZK3) and active. QSL via WA3HUP.

Solomon Islands, H44AP is very active on 17 meter SSB. QSL to Box 418, Honiara, Solomon Islands.

Malawi, 7Q7RM is active from Malawi. QSL to Ron MacFarlane, Box 472, Blantyre, Malawi.

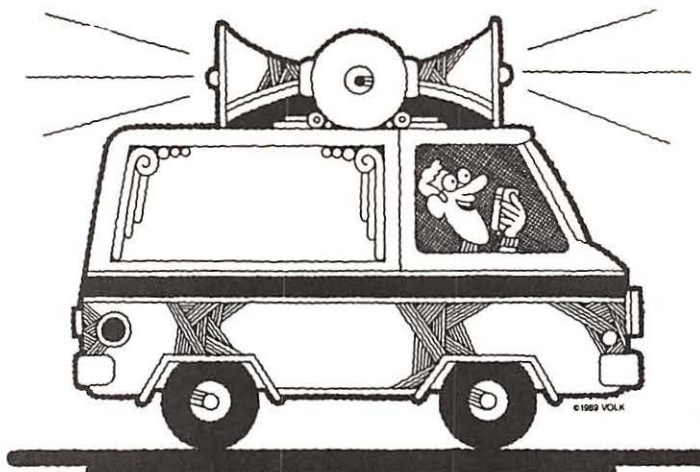
Yemen, listen for 701AA, they are active on 14195 and answer up from 14200 to 14220 at about 2100UTC. The recent unification of 4W and 70 may produce a new country.

Marion Island, ZS8MI is now active he is on Saturdays at 1130UTC on 14256. QSL to 9K2CS.

Trindade, ZYO. The Natal DX group will active this Brazilian island through August. QSL ZY0TQ via PK7KM and ZY0TP via PT7AA.

Propagation

Sunspot numbers have been on the



increase again and we reached flux of 268 back on May 17 which is the highest for the year so far. Things have slumped off again and flux levels have been hanging around the 200 mark since then.

Expect fair to good propagation throughout the month.

ARRL Repeater Directory

It shouldn't take you scanner owners long to figure out that hams populate several realms in the VHF/UHF spectrum. Repeaters abound, especially in major metropolitan areas; so many, in fact, that coordinating committees and councils are necessary to avoid mutual interference.

A handy pocket guide like the *ARRL Repeater Directory* is indispensable for sorting out the "machines," ham repeaters which pick up the weak transmissions from mobile, portable and base radios and rebroadcast them at higher power for considerable range extension.

The latest edition of the directory not only lists thousands of repeaters alphabetically by state and city, but tables of band plans as well, an excellent source of information for listeners as well as amateur operators.

Interested in learning more about repeater operation or ham radio in general? An appendix of radio clubs around the country, listing meeting times and locations as well as mailing addresses, is included.

You can pick up the *ARRL Repeater Directory* for \$6 postpaid from the American Radio Relay League, 225 Main St., Newington, CT 06111.

The Best of Both Worlds

In the mail a while ago we received a few pictures from Will Sperling, WA9YHX, of Westmont, Illinois, an active member of the

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The FAX mode gets more and more fascinating. The recording of FAX stations on LW and SW and the direct reception of meteor satellites is no longer an esoteric science. New hard- and software connects a radio receiver directly to a laser printer. The result is press photos, satellite pictures and weather charts with the superior resolution of more than 2000 picture elements per scan line.

The new edition of our FAX GUIDE contains not only the usual up-to-date frequency lists and transmission schedules, including those of all US Navy stations worldwide. It informs you particularly about new FAX converters and programs on the market, and includes the most comprehensive international survey of the "products" of weather satellites and FAX stations from all over the world. More than 300 sample charts and pictures were recorded in 1989 and 1990. Here are that special charts for aeronautical and maritime navigation, the agriculture and the military, barographic soundings, climatological analyses, and long-term forecasts, which are available nowhere else.

- Additional chapters cover
- List of 389 frequencies - from VLF to UHF - monitored in 1989 and 1990.
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 - Technique of FAX transmission. International regulations.
 - Lists of abbreviations, addresses, and call signs. Test charts.

Further publications available are GUIDE TO UTILITY STATIONS (16th edition) as well as RADIOTELETYPE CODE MANUAL and AIR and METEO CODE MANUAL (10th / 11th editions). We have published our international radio books for 20 years. They are in daily use at equipment manufacturers, monitoring services, radio amateurs, shortwave listeners and telecommunication administrations worldwide. Please ask for our free catalogue, including recommendations from all over the world. All manuals are published in the handy 17 x 24 cm format, and of course written in English.

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Chicago chapter of RCMA (Radio Communications Monitoring Association). Will says his shack keeps the family well informed; It should!

Due to the fact that he resides in an apartment, there are no outside antennas. Will says, "I use telescopic antennas which operate well, and also a 6 element 440 MHz Yagi and 220 MHz dipole mounted to a pipe on the inside wall (see pic). A mobile 2 meter whip is attached to a corkboard for local repeater/simplex use."

As if that weren't enough, Will adds, "Along with the above-mentioned ham radio/monitoring equipment, we operate a Commodore-based bulletin board (BBS) with a section devoted to scanning/ham radio along with other special interests, and software exchange. The set-up is 8 bit word, one stop-bit, no parity, 300/1200 baud, with 2.5 meg. of storage. The system is open to all computers, not just Commodore. Phone # is (708) 852-1292. Logon as 'new user' and say 'where you heard about it.' Please call, system is open!"

Will has launched his own personal campaign for the spread of amateur radio. The XYL's name is Helen; her call is KA9KNY and one son, Greg, age 11 is KB9DBC. Other children are potential hams. How many can you come up with, Will?!

Farewell

That's all for now, gang. This is my final - final as the SSB types on 75 are so fond of saying. Increased demands on my time make it very difficult for me to prepare a column every month and for the time being at least I must say 73.

Thanks to all of you who have written and supported this column and encouraged me in my efforts. It has been a lot of fun for me, and

extremely interesting to say the least. Take care and keep on hamming! Ike, N3IK

mt

Editor's note: *Monitoring Times* would like to thank Ike Kerschner for the years of work he put into this magazine. A regular writer almost from the inception of this magazine, he has authored numerous articles and columns. Having the opportunity to know people like Ike makes the job worthwhile.



ARGENTINA

RAE, 11710 kHz. Full data QSL card. Verification signer, Marcela G. Compos. Received in 81 days for an English report. Station address: C.C. 555 Correo Central, 1000 Buenos Aires, Argentina. (Darren White, New Augusta, MS) (Sam Wright, Biloxi, MS)

BONAIRE

Trans World Radio, 9535 kHz. Full data QSL card of Willemstoren Lighthouse. Verification signer, Sally Rork. Received in 21 days for an English report and mint stamps. Station address: North American Service, Bonaire, N.A., Caribbean. (Nicholas Adams, Newark, NJ)

CHINA (Republic of Taiwan)

Voice of Free China, 11.805/5950 kHz. Full data QSL card and souvenirs, without verification signer. Received in 44/86 days for an English report. Station address: P.O. Box 24-37, Taipei, Taiwan, Rep. of China. (Nicholas Adams, Newark, NJ) (Darren White, New Augusta, MS) (Frank Hillton, Charleston, SC)

EQUATORIAL GUINEA

Radio Africa, 7118 kHz. Stamped full data QSL card, without verification signer. Received in 56 days for an English report and mint stamps. Station address: 01201 Torre Ave, Suite 320, Cupertino, CA 95014 (Darren White, New Augusta, MS)

MALAYSIA (Federation of)

Radio TV Malaysia, 4845 kHz. Full data personal letter from the station Controller. Letter verified for RTM Home Service-Radio 6. Also received a color brochure/schedule for the Voice of Malaysia. Received in 45 days for an English report, mint stamps and Mardi Gras '90 souvenirs. Station address: Dept. of Broadcasting, Angkassapuri, Bukit Putra, 50614 Kuala Lumpur, Malaysia. You saw it here in MT first, folks. Check out June 90 Broadcast Loggings for this rare Malaysian log -cd.

MONGOLIA

Radio Ulan Bator, 15305 kHz. Full data QSL card, without verification signer. Received in 152 days for an English report. Station address: C.P.O., Box 365, Ulan Bator, Mongolia. (Dick Moon, George, S. Africa)

NORTH KOREA

Radio Pyongyang, 15115 kHz. Two full data QSL cards, unsigned. Also received an assortment of propaganda literature, a station pennant, and postcards. Received in 53 days for two reports. Station address: RTV Broadcasting Committee of the DPRK, Pyongyang, North Korea. (Mike Sadlier, Woodland, WA)

OMAN (Sultanate of)

Radio Oman, 17.735 kHz. No data QSL letter. Verification signer, Hamed Yahya Al Kindy. Received in 52 days for an English report and one IRC. Station address: Ministry of Information, P.O. Box 600, Muscat, Sultanate of Oman. (Darren White, New Augusta, MS)

SHIP TRAFFIC

Mormaskey-WMBQ (bulk carrier), 500 kHz. Full data letter, without verification signer. Received in 19 days for an English utility report and return postage. Ship address: Mormac Marine Transport, Inc., Three Landmark Square, Stamford, CT 06901. (Hank Holbrook, Dunkirk, MD)

WSD-2359

THIS WILL VERIFY YOUR RECEPTION OF "THE HIGHLANDER" (WSD-2359), 29 JAN 1989 AT 0302 UTC ON A FREQUENCY OF 8294.2 KHZ USB.

POWER: 500 W SHIP TYPE: Private Yacht
 ANTENNA: 36' Vertical POSITION: 23°35'N 90°15'W
 REMARKS: (2015 ZF)

(signature)

Two ship verifications sent by Patrick O'Connor of Hinsdale, NH: A private yacht named "The Highlander" and the bulk carrier "Iran Hodares."

EQIR

THIS WILL VERIFY YOUR RECEPTION OF THE "IRAN HODARES" (EQIR), 13 AUG. 1988 AT 1728 UTC ON A FREQUENCY OF 16463.1 KHZ USB.

POWER: 1200 W PEP 1.2KW SSB SHIP TYPE: BULK CARRIER
 TX: NSD51 JRC
 TONNAGE: NIT 12785.89 MTONS POSITION: 13.00.00 @ 1700UTC X52N-085W
 REMARKS: GRT 19244.60 MTONS

THANKING YOU,

(signature)
 (A.R. SIDDIGHI) RADIO OFFICER.
 (signature & title)

Dona Sofia-SVOL (bulk carrier), 500 kHz. Full data prepared QSL card, without verification signer. Received in 71 days for an English utility report and return postage. Ship address: Chandris Maritime Agencies, Ltd., Aliakmon & Kanair, P.O. Box 82, 185 37 Piraeus, Greece. (Hank Holbrook, Dunkirk, MD)

HMAS Adelaide-FFG-01, VKDA (Royal Australian Navy frigate), 16463 kHz USB, partial data prepared form card, and friendly letter from Lt. M.R. Cawsey, Signal Officer. Received in 41 days for an English utility report, souvenir postcard, and return postage. Ship address: c/o RAN Warship Section, Clyde, NSW 2890 Australia. (Rick Albright, Merced, CA)

HMAS Brisbane-DDG-41, VKLC (Royal Australian Navy destroyer), 12336 kHz USB. Full data prepared card stamped with the ship's silhouette. Color ship photo, and Welcome Aboard folder. Verification signer, Lt. T. Atkinson, Signal Officer. Received in 44 days for an English utility report, souvenir postcard and return postage. Ship address: c/o RAN Warship Section, Clyde, NSW 2890 Australia. (Rick Albright, Merced, CA)

Bora Universal - ZFFT, 16.463.1 kHz USB (refrigerated cargo ship). Full data prepared card, ship photo, ship plan and nice personal letter, without verification signer. Received in 30 days for one follow-up English utility report and one IRC (returned). Total time out 535 days. Ship address: c/o CI Shipping Ltd., Holland House, 1-4 Bury St., London, EC3N 5AT, England. (Patrick O'Connor, Hinsdale, NH)

Sokolica-ELIG5, 16.463.1 kHz USB (oil tanker). Full data prepared card, without verification signer. Received in 26 days for an English utility report and one IRC. Ship Address: c/o OMI Corp., 280 Park Ave., New York, NY 10017 (Patrick O'Connor, Hinsdale, NH)

SINGAPORE

BBC Far Eastern Relay Station, 15360 kHz. Full data QSL with transmitter site, signed by Resident Engineer. Received in 23 days for an English report. Station address: P.O. Box 434, Singapore. (Robert Landau, Secaucus, NJ)

TURKEY

Voice of Turkey, 9445 kHz. Full data QSL card and souvenirs, without verification signer. Received in 77 days for an English report. Station address: P.O. Box 333, 06-443, Ankara, Turkey. (Darren White, New Augusta, MS) (Nicholas Adams, Newark, NJ)

UNITED STATES

WWL-New Orleans, Louisiana, 870 AM. Full data QSL card, signed by Robert L. Dunn-Engineer/QSL Manager. Received in 90 days for an English AM report. Station address: 1024 N. Rampart, New Orleans, LA 70116. (Russ Hill, Oak Park, MI)

KLVI-Beaumont, Texas 560 AM. Full data prepared verification, signed by Nathaniel Clarke, C.E. Also included personal letter, program lineup, and station sticker. Received in eight days for an English AM report. Station address: P.O. Box 5488, Beaumont, TX 77706. (Larry Van Horn, New Orleans, LA)

WGNE-Panama City, Florida 590 AM. Full data personal letter, and signed prepared verification by Charles Wooten, Consulting Engineer (WA4IMC) for WGNE and WFSY. Received in seven days for an AM report, souvenir postcard, and mint stamps. Station address: P.O. Box 759, Panama City, FL 32402. (Larry Van Horn, New Orleans, LA) Nicedaytime catch, Larry-ed.

WJEP-Ochlocknee, Georgia. 1020 AM. Partial data personal letter, and souvenirs. Verification signer, Logan Birdsong-Media Director. Received in 13 days for an English AM report. Station address: P.O. Box 90, Thomasville, GA 31799 (Harold Frodge, Midland, MI)

WBZ-Boston, Massachusetts 1030 AM. Partial data logo card, without verification signer. Received in 32 days for an English AM report, and a SASE (self-addressed-stamped envelope). Station address: 1170 Soldiers Field Rd., Boston, MA 02134. (Harold Frodge, Midland, MI)

LW Station HYX-385 kHz. Full data prepared card, signed by Mark Portle. Received in 14 days for an English report. Station address: Harry Browne Airport, 4821 Janes Rd., Saginaw, MI 48601. (Russ Hill, Oak Park, MI)

WJJD-Chicago, Illinois 1160 AM. Partial data Call card. Verification signer, John D. Husin-C.E. Received in 28 days for an English AM report, and SASE. Station address: 180 No. Michigan Ave., Chicago, IL 60601 (Harold Frodge, Midland, MI)

WACY-Fenton, MI, 1160 AM. Report returned marked "correct." Verification signer, Martha J. Day-General Manager. Received in 14 days for an English AM report, and a SASE. Station address: P.O. Box 381, Fenton, MI 48430. (Harold Frodge, Midland, MI)

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ARQ, FDM, TDM, ...

If you own a Universal M7000 or Infotech M6000, you have the ability to copy ARQ-M2 or ARQ-M4 TDM (Time Division Multiplexing). Sometimes it's referred to as "Moore" code. It's similar to SITOR mode "B" which is used in HF Marine communications or FEC Amtor which is used on the ham bands.

The acronym ARQ means Automatic Request which is an error correction scheme. The M2 or M4 designates the number of channels that are multi-plexed on the signal. Multiplexing is used to improve channel efficiency by allowing two or four TTYs to be connected to a single transmitter. The multiplexing is achieved by interleaving channel characters or bits in the serial bit stream. In ARQ-M2 mode the M7000 can display a split screen which allows a simultaneous display of both channels.

An ARQ signal sounds very much like RTTY which is sending constant traffic. It is, in fact, sending what's known as an Idle or "Beta" synchronization character. The Idle is needed because Moore code uses synchronous data. It doesn't send a start and stop pulse like normal RTTY.

The beta characters are used to keep the receiving equipment locked to the transmit signal. The M7000 has an idle L.E.D. which turns on when a lock is established. During traffic, the transmit side can send an Idle character to automatically re-sync the system when noisy reception is a problem. (Universal Shortwave in Reynoldsburg, Ohio, sells several books on this subject. Call them for details. See their ad in this magazine.)

ARQ, for the most part, is boring because usually all that you'll get is a lit Idle indicator. Most ARQs do this in order to keep the channel clear and to test it for error performance which can change at any moment. If you monitor it for several hours you may get a printout because they do send traffic. RFLI in Fort De France, for example, will send a message to RFTJ in Dakar. The Dakar link will then repeat the message back to Fort De France. Then RFLI can examine the printout for errors.

Here are some ARQ, TDM, FDM and Interleaved FDM loggings: (FDF=Fort de France)

FREQ KHZ	CALL	LOCATION	BAUD/SHIFT	COMMENTS
4647			96/85	TDM2
5823	CBFMD	CHILI	96/170	TDM2
6770	RFLIE	FDF	96/850	TDM2
6935	RFLI	FDF	96/850	TDM2
7704	RFTJ	DAKAR	96/850	TDM2
7895	RFLI	FDF	96/850	TDM2
8000	PAPEETE	FHJ	96/850	TDM2
8244	CBFFA	CHILI	96/170	TDM2
9215	?	DRIVER VA	50.85	FDM CH 12
9375	RFHJ	TAHITI	96/850	TDM2
10798	?	?	48/850	ARQ-E3
10855	GXQ	LONDON	FDM	8 CH INTERLEAVED FDM
11068	?	DRIVER VA	50/75	FDM NEWS CH 12
11428.5	?	?	75/75	FDM NEWS CH 14
11437.5	?	?	192/340	2 CH INTERLEAVED FDM
12325	?	?	340/	8 CH INTERLEAVED FDM
13000	?	?	75/75	FDM CH 16 SENDING Xs
13473	GYU	GIBRALTAR	FDM	INTERLEAVED FDM
13635	RFHJ	FRANCE	96/850	TDM2
14625	RFLI	FDF	96/850	TDM2
14925	RFTJ	DAKAR	96/850	TDM2
15815	MKK	LONDON	96/350	TDM2
18965	RFHJ	PAPEETE	96/850	TDM2
19215	RFLI	FDF	96/850	TDM2
20905	?	?	FDM	INTERLEAVED FDM
20323.0	GXQ		50/170	IRY FOXES, 6027 FDM
20146.3		GERMANY	96/170	ARQ E-3 EMBASSY TRAFFIC
23714.4	?		193/380	ARQ E-3
23838.2	?		96/790	TDM2
24848.4	RFLI	FDF	96/750	TDM2 CRYPTOGRAMA

Another interesting item is FDM (Frequency Division Multiplexing). It's also used to multiplex several channels on a single carrier but instead of interleaving bits, FSK channels are closely spaced within the audio spectrum. When the multiple FSK tones are connected to an SSB transmitter, they will produce a buzzing sound on a shortwave receiver. Special filters are needed in order to separate a channel from the aggregate signal and as many as 24 channels can be sent on a VFT (Voice Frequency Telegraphy) link. The M7000 can also copy FDM.

An unusual mode that is used by the British is TDM on an FDM link. Believe it or not, they use an interleaved FDM mode that can be copied using standard RTTY equipment. Interleaved FDM is accomplished by taking the Mark tone of one FSK channel and placing it in between the Mark and Space of the previous channel so that you get a Mark, Mark, Space, Space arrangement (see the chart following). The transmitter usually sends a combination of 50 baud RTTY for the order wire which is

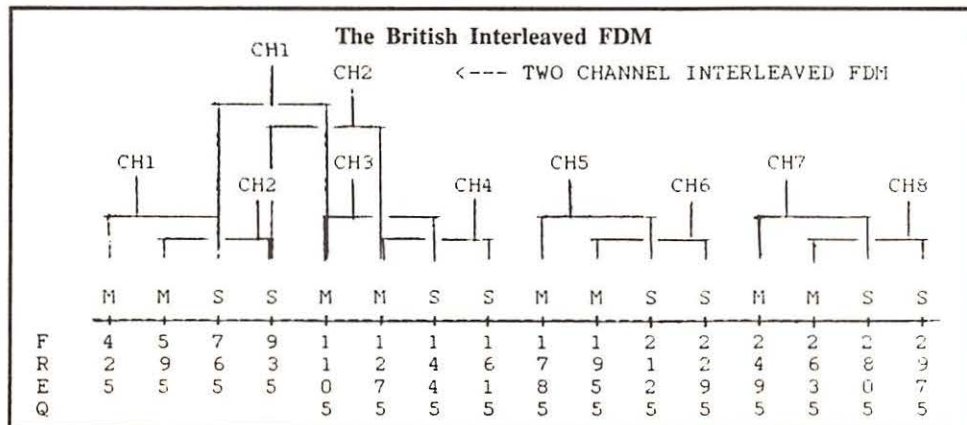
usually on Ch 1, 75 baud encrypted RTTY and TDM-M2. Sometimes only two channels are sent and the other ones are turned off.

Two channel interleaved FDM sounds like normal RTTY with an interfering carrier below the FSK. By adjusting the notch filter on your receiver, you can eliminate the carrier but that wouldn't be advisable because you will eliminate the mark tone for the order wire. The order wire usually idles with a constant mark tone. Other times it may be sending traffic. On the two-channel Interleaved FDM the order wire tones are 765 and 1105 HZ, channel 2 is 935 and 1275 and it's usually sending TDM2.

You can copy the channels using an M6000 or M7000 by simply tuning your receiver to the frequencies listed below in upper sideband mode. Then by using the RCa or RDa buttons on the M7000, for example, manually set the Mark and Space filter to the channel frequencies shown on the chart. Make sure that the filter bandwidth switch is set to NORM. I like to call this method "straddling the tones". The mark or space tone of the next channel will fall between the TU's filter bandpass but because of the excellent filtering of the M7000, it can copy the signal.

You should be able to copy TDM2 (A channel) sending weather on channel 5 of the chart. Channel 1 is the order wire and channel 6 may send a FOX test using 75 baud RTTY. Channel 7 may send encrypted RTTY but you will have to experiment to find out which mode is used on a particular channel. You can do that by observing the data error, idle and data indicator LEDs on the M7000. One last note, if you stay on the order wire channel they will eventually send their call.

NNN



TVRO News Digest

Trade journals are not the most exciting reading and the satellite television industry is no exception. The gleeful domain of unfettered public relations hounds, these periodicals are stuffed with material of interest to almost no one else:

"Mr. P.N. Pumpnickel has recently been promoted to Assistant Vice President for Interagency Affairs, Bilkem Industries South, suppliers of gimcrack holders to the industry."

"Dewlap, Inc. announces a major breakthrough in gimble adjusted shims. 'This achievement has been expected for some time,' a Dewlap spokesman said, 'It will cut installation time by 15 percent and last about half as long.'"

Yet buried amid the babel of trade association pronouncements and quotes from top industry CEOs are interesting little nuggets which, while they won't make the evening papers, are the stuff of real industry news.

What follows is a digest of items gleaned from the pages of small circulation industry journals which may not show up in your mailbox.

• The Monitor Channel is the name given a basic cable network to be launched in May '91 by the Christian Science *Monitor* (CSM). The CSM has been running UHF station WQTV in Boston since 1986 which is carried in the area by 72 cable systems. While no satellite location or launch date has been announced, it is said that they are seeking space on Galaxy V which should be in its orbital slot by early 1992.

• The Discovery Channel, which began "fixed-key" VCII test scrambling June 1 through July 2 is now full-time "fixed-key." This means anyone with a VCII may continue to receive programming without charge even though it's scrambled. TDC will go full-time "addressable" scrambling on September 17. This means a subscription to the channel will be necessary for reception.

• A report in *Multichannel News* of May 7, 1990, says that an investor "...with close ties to the Rev. Sun Myung Moon's controversial Unification church..." has taken over 25 percent of the Nostalgia Channel Network, Inc.

• Aging C-band Satellite F3 went temporarily berserk back on April 16 of this

year when its solar array began looking away from the sun. The lack of power caused the bird to temporarily begin shutting off its transponders. The power outage lasted about 50 minutes around midnight and, except for the technicians whose job it is to keep the bird on track, went virtually unnoticed.

• An article in *Satellite Business News* reports that the recent explosion of an Ariane rocket was apparently caused by a piece of cloth left behind by workers. The cloth is thought to have clogged one of the rocket engine's water pipes. Since the cause was not a design flaw, it is thought that Arianspace will be back in business shortly. Unfortunately, the destruction of a Japanese HDTV satellite onboard may set back the timetable for introduction of HDTV to the American market.

• Canadian satellite Anik D2 will be moved from its current position at 110.5 degrees west to a new position at 111.1 degrees west. The move, which actually began in November 1989, shifts the bird .10 degrees every six months until the new location is arrived at. The last stage will occur in November 1992.

• Major dish manufacturers Unimesh, Winegard, and Paraclipse are all pushing a new line of smaller diameter C/Ku band dishes. Paraclipse offers a six and eight foot addition to its traditional line of 10, 12 and 14.5 foot reflectors. Winegard has just introduced a 7.5 foot dish. A Winegard ad says the smaller size is possible because of "... Higher powered C-band satellites, improved low noise LNBs and lower threshold receivers ..."

The Winegard, like the Unimesh seven foot version, features a quadropod feed support. While these are all excellent satellite antennas, it should be noted that the first of the higher power C-band satellites will not actually be in service for another year. Even then, residents along the fringes of the satellite "footprints" may find the small size reflectors lacking. The serious TVRO enthusiast should still be advised to get the biggest possible reflector that budget and space will allow.

• Speaking of reflectors, how about TVRO to go? Two manufacturers are offering satellite antennas specifically designed for the R-V crowd. Tsiger Planner, Inc. of Colorado Springs, Colorado, has introduced its Nomad brand R-V antenna which is, in fact, flat.

While ads for the product neglect basics such as size and weight and whether it is Ku as well as C-band, it is an intriguing-looking "dish," er, plate.

TRANSPONDER NOTES

The BBC Six O'Clock news has moved to W4,10 from its earlier location on W5. The move followed a time change and caused a small amount of befuddlement on my part. Until the time change to standard time, time will remain at 1:00 p.m. ET.

The collapse of RFD-TV this past spring has led to confusion for the Satellite Broadcasting and Communications Association (SBCA), a trade lobby group. The SBCA had been running a satellite dealer audio only channel on a W5,17 subcarrier. Since the demise of RFD-TV the SBCA has relocated to T3,24 (the new TVN pay-per-view DBS service). They should be found on 5.80 or 6.20 MHz audio.

The Triple D Publishing electronic satellite guide known as SuperGuide, formerly on G2,4 has moved to T303,24 with a simulcast on S1, 17 following the collapse of Tuxedo Network.

International Cablecasting Technologies, Inc. (ICT) can't seem to agree on its own programming. Originally billed as CD/18 ICT is now offering 30 channels of audio programming. Still no word on exactly what the various formats will be.

After some months of returning to the air, the Caribbean Super Station (CSS) is said to be operating on a day to day basis financially.

Two New Catalogs

The latest editions of two mail order satellite TV catalogs were recently received. Skyvision, Inc. of 2066 College Way, Fergus Falls, MN 56537 offers a 40 page catalog of complete TVRO systems and accessories.

United Satellite Systems of St. Hilaire, MN 56754, has a new 26 page catalog of excellent products and accessories for the TVRO enthusiast. Watch for the Sky Store sponsored by USS of W4,11 first and third Tuesday nights of each month 9:30-11:30 p.m. ET. Of special note are the very informative "tech talks" by Doug Dehnert, USS founder and diehard TVRO guru.

Mail Bag

"My interests lie in receiving the stereo audio subcarrier services on Galaxy 2, namely transponders 3 and 15 which are classical music programs... What size dish would be required?" Zola Saffer, Coral Gables, FL.

While your south Florida location has you poised on the edge of most satellite footprints, you should have little difficulty getting excellent signals with a good quality 10 foot dish. Signals will be further enhanced with a larger reflector and a good 12 foot dish may be in order. However, I wouldn't recommend anything smaller than a 10 footer.

Any of the new satellite receivers will tune the services you enjoy in stereo. To get the proper effect of these audio channels, you'll want to connect the left and right audio out of the satellite receiver to the Aux input on your stereo. Thus, by pushing the Aux button on the front of your stereo, you'll get the full stereo sound from your satellite receiver.

Would you like more classical music? See the accompanying classical music chart as compiled by Bob Lagrone in his "Satellite Audio" column in *OnSat* magazine.

"I recently purchased a Zenith TV with built-in teletext decoder, and I am very pleased with it. Please continue to write about teletext and related topics...(also) Would I get enough (satellite) signal to use an indoor five foot dish placed in the attic?" Patrick Paventa, Hawthorne, NJ.

Sadly, Patrick, the dish in the attic idea won't work. The problem is that the very short microwaves, unlike the longer TV and radio waves, cannot penetrate the layers of material which comprise your roof. However, an externally mounted dish on your roof (provided there are no big trees blocking the way) will give you excellent service. The Skyvision catalog mentioned earlier carries a variety of roof and building mount supports.

Also, I'm glad you're enjoying the Electra Teletext Service with your Zenith TV set. I assume you're watching Electra via TBS SuperStation on your local cable system. Try monitoring other cable channels such as WGN for additional possible World Standard Teletext transmissions. Let me know what you find.

mt

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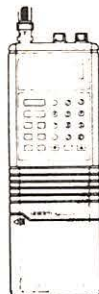
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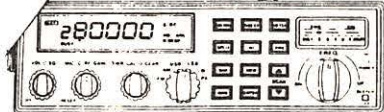
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BC-600XLT 100ch, 29-54, 118-174, 406-512, Service Search **\$229.00**
BC-100XLT 100ch, 29-54, 118-174, 406-512, Handheld **\$209.00**
BC-800XLT 400ch, 29-54, 118-174, 406-512, 806-912 **\$269.00**

BC-210XLT 40ch, 29-54, 118-174, 406-512MHz **\$219.00**

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TS-1 35ch, 29-54, 118-174, 406-512, Turbo Scan **\$199.00**
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CLASSICAL MUSIC (from OnSat)

Station	Frequency(MHz)			Satellite
KSUR (Monterey)	5.76		MN	F1,7 F4,20
WFMT (Chicago)	6.30	6.48	DS	G1,3
WQXR (New York)	6.36	6.48	DS	G1.15
CBC Radio	5.76	5.94	DS	D1,16,22,24
CBC Radio	6.12	6.30	DS	D1,24
Galactic Classical Collection	6.36	6.48	DS	G3,11
C-SPAN Audio 1	5.20	6.20	DS	G3,24
	MN Monaural DS Discreet Stereo			

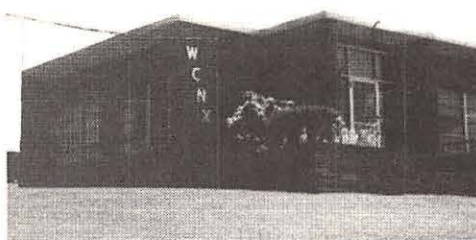
The Creem of AM Radio

You have to love radio. It's the essential ingredient in making a small town AM station successful. Ask Ed Creem. For the past few years he's been president, general manager, and news director of WCNX in Middletown, Connecticut. Situated just 15 miles outside the state capital of Hartford, more people are now listening to 1150 kHz than at any time in the station's 41 year history.

"I can't see running a station like this as a businessman. If you love the industry, and you know radio intimately, and you can do all the things within the station, you can make money at it. But if you're a guy in some other field and you say 'Wow. That looks like a great business to get into. I think I'll buy it,' you're probably going to die at it because you won't have a handle on it. It's really a shirt sleeves, nuts and bolts business at this level."

Ed's prescription for radio success begins with deciding what the station can do best. "I think to be successful you have to figure out what your role is as a stand-alone AM station. We have sort of a unique situation here. There are only two commercial radio stations in the county. Previously, I think the station tried to be a junior Hartford station and you can't."

"In the past, music was always primary and whatever budget was left over went to hire a news person full-time. All the energy was into 'What records are we going to play next?' And it was so counter productive. Because in a little station, in a market the size of Middletown, you can't compete with Hartford or New Haven on music alone, so we decided to make news our thing. We did it right from the very beginning."



Creem realized that WCNX could cover Middletown's news better than any other source including local newspapers. "For 30 some odd years the station never really made an effort to be the news presence in the market. We had to start from scratch and develop all the contacts the newspaper built up for years and years and it took some time. After five and a half years of doing it, people have come to respect us. People call us now. Newsgathering has become a lot easier for us."

Middletown began to recognize WCNX as the place to hear news first. "Local news went from ripping the wire and rewriting yesterday's Middletown paper to becoming the leader. We

WCNX General Manager (and scanner nut) Ed Creem in the station's main control room.



report it first. Let the Middletown press print what we had this morning."

As news director, Ed compiled a chapter by chapter manual describing exactly what WCNX will cover to maintain its local image. Creem is confident that AM radio can be competitive if the programming is unique and well produced. "There's no FM on the dial that can tell you what's going on here. There isn't another station on the dial, AM or FM, that someone could tune in to find out who killed who or what happened last night at the council meeting, or the planning board meeting, or at the school board meeting. This is the local paper of the air."

"You have to have a sense of the community. There are just too many good signals on the dial now, particularly on FM, so you have to sound really good, really professional, and you have to offer them some reason to tune you in. That, in our case, is the news and information. If something happens, as small as this staff is, we're going to go to town to cover it."

The most important news gathering device at WCNX could be Ed's collection of scanners. "There are few people who have as many as I do. I'm a real scanner nut. One by my bed, one in my car, one in the living room, one in the kitchen and two portables." By constantly monitoring police, fire and emergency services, WCNX can report important community events almost instantly.

In addition, WCNX uses a sophisticated broadcast-quality two-way radio system, including hand-helds, for on-the-spot reports. The station also leases a business band frequency to cue talent outside the studio and coordinate broadcasts. Add a few cellular phones and they're ready for anything. High school football and basketball, election nights and breaking news events are big audience builders and money makers for the station, and they're all easy to do via these wireless links.

Ed's direction and motivation has brought a new era to WCNX news. "We're actually turning out more local product now with two people gathering news on a daily basis than we did with four full-time people when we first started. Part of the reason that we've been able to cut back on staff had more to do with technical changes we made with newsgathering. We used to have people here all the time to babysit the transmitter. We just automated more."

WCNX transmissions are constantly monitored by a Gentner VRC-2000 remote control device that will actually call the station operator when the transmitter does anything unusual that requires attention. All transmitter functions can be performed from any telephone, and a PC records transmitter readings continually. Now you can talk to your transmitter and it actually talks back.

Although WCNX broadcasts with only 2500 watts, its signal travels incredibly far. The heart of the station is an all solid-state Harris SX series transmitter with Optimod processing. The tall WCNX tower is right on the shore of the Connecticut River, a perfect spot, and 1150 kHz is almost unused in the Northeast. With an excellent antenna site and frequency, WCNX has a signal that is hard to beat.

Last month WCNX changed its format from adult contemporary music from Satellite Music Network to an all talk format provided by the Sun Radio Network of Florida. Creem hopes that combining his local newscasts with Sun will maximize his listenership.

"Local news is our thing and the reason we're making the change to a talk-based format. We just think that that's going to be more compatible with what people have come to expect of WCNX... They identify us as the place they go to get news and information. The biggest thing we hope to gain is to make our afternoons as listened to as our morning drive."

By mastering the skills of his business, and having the courage to develop and try new ideas in programming, Ed Creem is creating lots of excitement in Central Connecticut. "The station is like your home and your family too." AM radio will never die as long as there are stations like WCNX.

Bits 'n' Pieces

✓ Where is a radio studio that's made for you and me? At Disney World in Orlando, Florida. The prime attraction of The Sunshine State has built a beautiful state-of-the-art complex to encourage disk jockeys to promote the amusement center. In one year Mickey Mouse and friends have welcomed 115 American radio stations to their deluxe broadcast facility along with seven networks, seven stations from Great Britain and even Radio Moscow. You'll see it while you wait to enter The Monster Sound Show in the Disney-MGM Studios theme park.

✓ WQYK in Seffner, Florida, has become the first FM station on AM. Using a new system invented by George Yazell, a retired engineer, WQYK is testing NFR: Noise Free Radio. By combining a normal radio signal with a specially encoded narrow band FM signal, AM stations become as quiet as FM with excellent audio quality.

If the FCC agrees that the signals are compatible with regular AM reception, and meet their technical specifications, it could be a very significant technical advancement. Listeners would enjoy the quality of FM combined with the long distance penetration of mediumwave signals. WQYK can be heard on 1010 kHz with 50 kilowatts during the day and 5,000 watts at night, but to hear the FM test you need a special receiver.

Mailbag

✓ WDAS talk show host Georgie Woods could easily be called Mr. Chips. On the air in Philadelphia since 1953, Woods has put his celebrity status to good use lending his name to eight snack foods including potato chips, pretzels and cheese curls. 200,000 bags of "The Snacks With the Goods" are sold each week outselling all national brands in the City of Brotherly Love. W. Earle Doan passed along this tasty item.

✓ Mary Chapin Carpenter sent us a recent classified ad from The New York Times. Listed under "Radio" it read: "Wanted: One Zookeeper to work with Ross Brittain and The Z Morning Zoo on top-rated WHTZ Radio. Hours long with good pay. No pets, no type As. A pleasant speaking voice and a good sense of humor is necessary. Must work well with all types of people including Mr. Leonard. Must

have six months experience or a degree from the Connecticut School of Broadcasting. Good looks important but not required. After all, this is radio. Z-100 is an equal opportunity employer and remember, no wimps allowed." I wonder what kind of animals you might get to feed?

New Station Grants

The FCC has just authorized these additions to your radio dial: Auberry, CA 105.1; Ford City, CA 102.1; Fort Bragg, CA 96.7; Princeville, HI 810; Sioux Rapids, IA 102.9; Bethalto, IL 95.5; Hawesville, KY 105.7; Milbridge, ME 93.7; Buchanan, MI 99.1; Hoosick Falls, NY 97.5; Palmyra, NY 99.7; Webster, NY 102.7; Huron, OH 96.1; Swanton, OH 107.3; Bay City, TX 96.1; Littlefield, TX 95.5; Midland, TX 95.1; Charlottesville, VA 107.5; Farmville, VA 101.3 and Lorima, WI 106.7. Courtesy of the *M Street Journal*.

For Sale

If you love country music and always wanted to break into radio near Nashville, your chance has come. A one kilowatt full-time nondirectional AM station is for sale with a nice studio, transmitter and property near town. The station was established by the current owner in 1970. Write to: R. Hobbs, 2009 Cromwell, Nashville, TN 37215 or call 615-373-2351.

Bring some sunshine into your life and live in Orlando, Florida. The original owner of a 10 kilowatt AM station is retiring and you could assume his 25 year old business. It includes a modern plant with 16 acres of land, a beautiful studio and transmitter building, and a signal that is twice as powerful as any other station nearby. Call E. Allmon at 407-425-0623 or write him at Box 555519, Orlando, FL 32855.

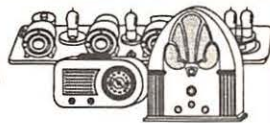
Three million dollars will buy you a top 80 market Class C-1 FM station and an adjacent market Class C-3 FM near Clinton, Mississippi. You'll enjoy the profitable western markets of the state with strong radio revenues. Call C. Strandell at 601-924-3087.

If Northern California suits you better, a Class B FM station is available with an automation system that's ready to roll for you. Get in touch with R. Trumbo at Box 117, Quincy, CA 95971 or call 916-283-4144.

International Bandscan

✓ Stations down under are hopping like kangaroos to convert from AM to FM. Australia is slowly opening the FM band with a few frequencies allocated for each major city. The new licenses are being auctioned off to the highest bidder, and stations are expected to

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pay up to 40 million Australian dollars to make the switch. The investment seems to pay off. Radio station 3KZ in Melbourne became KZFM last year and went from fifth to first in audience ratings. 5KA (now KAFM) in Adelaide, and 4BK (now B105) in Brisbane made similar jumps.

Unfortunately, the Australian government is not assigning enough FM frequencies for everyone to convert to a superior signal. All station owners, winners and losers in the auction proceedings, are bitter about the method that the licenses are being granted. Managing Director of KZFM in Melbourne, Les Heil, said "There is something very distasteful about being taken for the right to use improved technology when the only alternative is eventually to go broke."

✓ The Iron Curtain is falling rapidly but the Germans want their music to continue. The American Forces Network has brought American music and culture to the German people since the end of World War Two, and now that the cold war has ended, and the troops are beginning to leave, the radio station that served them might go, too.

Rupert von Plottnitz, a member of the Hessian State Parliament, wants the 150,000 watt station in Frankfurt on 873 kHz, and its sister station on 98.7 MHz FM, to become an independent operation financed by the state's Hessische Rundfunk. Von Plottnitz has been flooded by constituent's phone calls pleading for AFN to remain on the air.

"AFN and American music gave the Germans the knowledge that there was a better and brighter culture beyond the smothering boredom spread by German radio in the 50s and 60s," he said. AFN's powerful broadcasts can be heard hundreds of miles from Frankfurt even in the daytime.

Credits:

Many thanks to John Cassidy for introducing us to WCNX. Also thanks to readers David Harden, Lt. M.L. Cauthon III, W. Earle Doan, Howard Ragan, Mary Chapin Carpenter and Ron Carruthers. *Radio World* and *The M Street Journal* supplied information as well. Only two months left before Knoxville. Be there or be square. Until next month, happy trails.

Summertime, and the Euros are Easy:

Yes, summer Europirate reception is a reality right now. Two recently heard here in Central Florida by this writer are Radio Stella and the Voice of Europe. Best time to try for Radio Stella would be UTC Sundays from about 0200 to as late as 0600 UTC. The frequency is 6319.5 kHz. Radio Stella's operators are Scottish, but there are unconfirmed claims that the transmitter site is in Ireland. That could, of course, be an attempt to confuse the authorities, similar to German-based Rainbow Radio's false reports that it had relocated in France. In any case reports can be sent to 23 South Beethwood, Edinburgh, Scotland EH12 5YR.

Unlicensed Italian stations, such as the Voice of Europe, in the strict sense of the word are not pirates. They can operate legally, thanks to a controversial ruling by the Italian Supreme Court some years ago. However, the Italian government has never passed any legislation to make their legal status permanent, and there is always the possibility they may eventually go the way of the Irish pirates. A few who got too leftist or controversial have been closed. For its final transmission one such station made a live broadcast of the authorities breaking down the door.

Such a fate is not likely for the Voice of Europe, which sticks pretty much to pop music. This one does use English IDs, which may help in identifying it. You will also have the advantage of being able to try for it any night of the week and not just weekends. However, you may have to wait for a night when the ute which often blocks its 7538 kHz frequency is silent. A patient search between 0100 and 0300 should ultimately yield this one for many DXers in Eastern North America, and since VOE plans a power increase, those on the West Coast might have a decent chance at it. VOE has a very sharp QSL card. Your report can be sent to Voice of Europe, P.O. Box 26, 33170 Pordenone, Italy.

A lot tougher than the above two is the 15-watt West German Pirate Freaks Broadcasting Service, but Florida's Terry Krueger logged it recently. If you are up to the challenge, then try 15050 weekends. Krueger had them from 0058 to 0123 UTC. Reports go to P.O. Box 19074, Utrecht, The Netherlands 3501DB.

Of course, don't forget our old friend Jack Russel at Scotland's Weekend Music Radio. Jack has been heard on the west coast, so everybody has a good chance at this one. The most widely reported frequency is 15043, but 6310, 13630, 13720, 6235 and 13790 have also been used. To receive Jack's colorful QSL send your report to WMR, 42 Arran Close, Cambridge, England.

Making it Official: The FCC Field Operations Bureau in New York City recently forwarded to us a press release in which they state they did indeed shut down pirate WENJ in 1989. According to the FCC, the station was located in New Brunswick, New Jersey. You may recall that recently we reported that WENJ had denied that they were raided. The same office also reports they recently fined a Jamaica, New York, man \$1600 for illegal CB operations. The fines appear to be getting bigger these days.

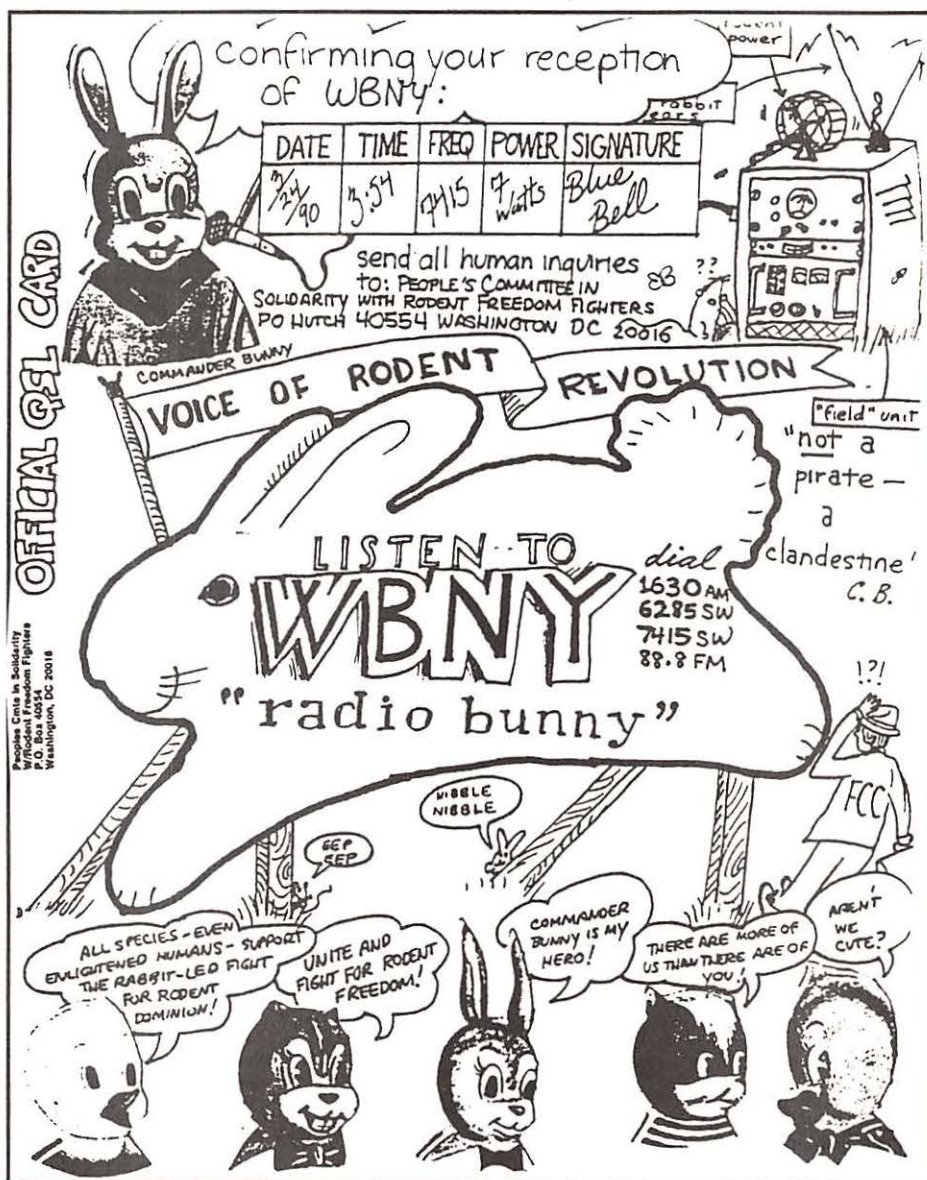
Meanwhile that astute observer of the New York metropolitan scene, Steve from Manhattan, reports that one station did put its antenna back up. Otherwise things remain quiet. With Judah Mansbach and Company around they most likely will stay that way.

Latin Intrigue: The Contras appear to have finally left the air. Broadcasts of Radio

Quince de Septiembre did continue on 6214 after the Nicaraguan elections, but none have been heard recently. Perhaps peace is finally coming to that troubled land.

Mediumwave [AM] DXers may want to keep an ear on 1180 kHz. Cuba's Radio Taino, or "Tour Radio," is now broadcasting on that frequency round-the-clock in a deliberate effort to block Radio Marti. This is in retaliation for the start-up of TV Marti. Should Taino (which has a good deal of English as well as Spanish programming) revert back to 1160, it might mean some sort of peace settlement has been reached. One of the last times I heard Taino on 1160 it was being plagued by a "spark" jammer. Was this a Cuban experiment or something made in the USA?

Neither Cubans nor Americans should have any trouble hearing Radio Marti if they move up the dial to the shortwaves. You can



hear it quite easily evenings in North America on 9525 kHz, and reception should be very good in many other parts of the world as well. Why the Cubans find Radio Marti so offensive on mediumwave but not on shortwave is another mystery. The island is said to have plenty of shortwave receivers which were brought in years ago so people could hear Radio Moscow. Radio Marti conducts some excellent survey research among Cubans who leave the island and it indicates that shortwave listenership is on the way down. Of those interviewed in 1986, 30 percent said they listened to the program on shortwave, while 26 percent of the 1988 respondents said they did.

If Castro has had success jamming TV-Marti's signal in the Habana area, David Potter reports having no trouble seeing it in Key West. If you take a Florida vacation this year, you might want to try for a bit of unusual TV DXing.

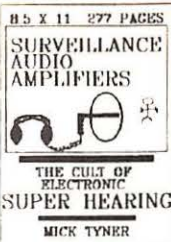
Even if not traveling to Florida you might want to catch the Cuban American National Foundation's "La Voz de la Fundacion" program which is relayed nightly on WHRI. Look for it at 0100 on 9495 kHz.

Recently the Foundation extended the broadcast from one to two hours. This might be significant. With the changes in Eastern Europe and elsewhere, there is no doubt that the Castro regime is increasingly isolated. There are some who believe that if it were to topple, the leadership of the Foundation, which also plays a key role in TV-Marti, might be in a good position to form a post-Castro government.

At least some reports on the program have been verified. You can write the Foundation at 7300 NW 35th Terrace, Suite 104, Miami, FL 33122.

Eastern Europe: If you haven't listened to the Eastern European stations in the past few months, you are going to find things quite different, to say the least. You can now hear its North American Service at 0000 UTC on 7345, 11680 and 11990; and at 0100, 0300 and 0400 on 5930, 7345 and 11680. If you tune in you will hear the Czechs talking about such things as private enterprise, selling former state businesses, and possible foreign investment. Careful monitoring of all the Eastern European stations, (yes, including Radio Tirana) should turn up a great deal of fascinating material that will not make the domestic media.

Meanwhile a recently received verification letter from Radio Yerevan in Soviet Armenia was especially interesting for two reasons. It took much longer than the station's usual response time. Secondly, none of the enclosures mentioned in the letter were enclosed. Was this just one of those normal errors that will occur from time to time, or is this happening frequently? If the latter, it



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might be a sign of bureaucratic breakdown in the troubled Soviet state.

More signs of change: If you have a QSL from the pro-Marxist Arab state of South Yemen, you now have a collector's item. South Yemen recently merged with pro-Western North Yemen. It seems unlikely the merged state would need two shortwave services, and the pro-Western element appears to be in control.

We Get Letters: Judging from the volume, pirate activity remains high. Up in Ontario, Niel Wolfish heard East Coast Pirate Radio on 7415, One Voice Radio on 7410, and Voice of Intoxication on 7390. Recent QSLs include Rockabilly Radio, Radio Mexico (a Spanish language pirate) and WLIS.

Virginia's Pat Murphy found RFM on 7400 and the controversial Voice of Tomorrow on 6239 kHz. He also had WLAF on 7410. Regular reporter Fraser Bonnett got a nice QSL (reproduced here) from Bunny Radio for his 7415 kHz logging.

In Pennsylvania Bill Taylor came across WYMN on 7400.5 around 1500. This one has an all female staff. Bill also got a Weekend Music Radio QSL and pennant.

In Connecticut Jim Kalach found Tube Radio on 7395 at 0058 UTC. Jim also reports receiving a QSL for his reception. Tube Radio uses Box 6527, Baltimore, MD 21219.

If it is on the air, then Nick Grace in Massachusetts will hear it. In one year Nick has bagged 250 broadcasts by over 70 pirates. Can anybody top that? Among recent loggings are WBRI on 7525, including a program they claimed was "brought to you by Leona Helmsley." He also caught the Voice of Sammy on 7410 after a Voice of Tomorrow broadcast. Its announcer claimed to be Sammy Davis, Jr., and it apparently did not like the VOT's philosophy. One Voice Radio was found on 7415 with a program of health

readings. WLIS and the Revolutionary Voice of Plainville checked in on 7410.

Some Final Clandestine Stuff:

The BBC Monitoring Service reports a new Ethiopian clandestine on 9400 at 1730 UTC. The sponsor is the Ethiopian Revolutionary Party, and the announced schedule is 0330 to 0400 and 1730 to 1800 UTC in the 41 and 31 meter bands. Reports can be sent to Box 710358, Dallas, TX 75371.

The BBC also reports Burmese clandestine Voice of the People of Wa State (Wa Ne Pyithu Atnan) on 5110 from 0015 to 0125 and 1130 to 1330. This supports the Wa State United Army, which broke away from the Burmese Communist Party. The BCP used to broadcast on this frequency and was widely heard in North America.

The CIA's Foreign Broadcast Information Service reports the Israeli defense establishment has raised reservations about the proposed VOA transmitter site for that country. According to the Defense Ministry, the transmitters to be constructed near Hazeva might harm intelligence work and flight safety. Our thanks to Frank McGurie for the FBIS material.

The Goddess of Democracy ship, which was to have broadcast to the Chinese mainland, has been scuttled. Favoring trade over broadcasting, no Asian state, including Taiwan, welcomed the ship. Taiwan refused to allow a transmitter to be loaded aboard, and both Hong Kong and Japan told the Goddess to stay away. There were also reports that disputes had broken out among its French sponsors. The Chinese had been following the ship with a submarine ever since it left the French port of La Rochelle. Our thanks to Russ Hill for some of the above information.

mt

DXing During the Dog Days

The so called "dog days of summer" are not exactly the greatest times for DXing the low frequencies. Some nights about the best you can do on longwave is try to remember how the various beacons sounded last winter. For one kind of beacon, however, this is the critical time of year.

Marine beacons in the Great Lakes areas used to be kept operating for as long as the lakes were navigable. The original users of these beacons have gone on to more sophisticated systems and the beacons are now used by pleasure boaters.

The reason why this is a critical time of year for the Great Lakes marine beacons is that the new users, pleasure boaters, diminish rapidly in number by September. Beacons that fail in the late fall or winter months are being left in this out-of-service condition until spring. And late spring at that. The chances of hearing them during the peak November-February period are being reduced substantially. Ergo, you have to listen during the summer simply to improve your opportunities of adding the Great Lakes beacons to your "logged" list.

If you are close enough to the area, you might just get a couple of these during the daytime. Electrical storm interference doesn't carry as far during the day, so daytime reception is occasionally good during the summer.

The Great Lakes marine beacons are found between 285 and 324 kHz. They are located from Minnesota to New York and in Ontario and Quebec. Most are not continuous marine beacons, sending their ID for 50 seconds and a long tone for the last 10 seconds in each minute. Canadian continuous beacons send their ID three times and then a long tone. The identifiers are one or two letters. A couple of these Great Lakes beacons are shown in this month's loggings listed below.

The same letter identifier may be heard on more than one frequency. These are different beacons, so it is important to note the frequency where it was heard. If you hear any sequenced beacons, you will hear different beacons on the same frequency. Each will be on for one minute and off for five minutes. The same sequence will then repeat. In the past there have been different beacons in all six time slots. Now, where sequenced beacons exist, there are likely no more than two or three in the group with silence filling the other minutes. Supposedly, all Great Lakes beacons have been changed to continuous and one per frequency.



One exception to the frequency range is TZ, Gibraltar Point, Ontario. This marine beacon just moved from 290 to 257 kHz. This puts it outside the normal frequency range for marine beacons. At this time it isn't known whether others will also move out to the marine frequencies.

I won't try to predict what changes may or may not occur. Things seem to be in a state of flux right now. The beacon at Dana Point Jetty was supposed to be moved to a slightly different location, a different frequency and to be given a new ID. Now that plan has been changed and Dana Point will remain as DP on 292.

Loggings --

The loggings for this month are from Russ Hill of Oak Park, Michigan. Russ has been a scanner buff for 14 years, but just recently started listening to shortwave and longwave. He uses a DX-440 with the internal antenna.

These are primarily Michigan, western Ohio and Ontario beacons, but they should be within range for those of you within several hundred miles to the east and west of there. Beacons can be heard somewhat further in a north/south direction so those of you even further to the south should give them a try.

215	UIZ	Utica MI
223	DM	Detroit MI (Metro airport)
230	VQ	Detroit MI (City airport)
236	4L	Chatham ONT (PVT)
245	YZE	Gore Bay ONT
246	DFI	Defiance OH
260	BYN	Bryan OH
266	B	Hamilton ONT

283	PT	Pelee Island ONT
286	GD	Goderich ONT (MCNT)
306	H	S.E. Shoal LS ONT (MCNT)
314	P	Fort Gratiot MI (MCNT)
326	VV	Warton ONT
332	PHN	Port Huron MI
332	QT	Thunder Bay ONT
332	YFM	La Grande 4 PQ
335	K	Waterloo/Wellington ONT
338	DE	Detroit MI (City)
344	CL	Cleveland OH
353	QG	Windsor ONT
359	YI	Detroit MI (Willow Run)
362	LYL	Lima OH
368	L	Toronto ONT
379	FZI	Fostoria OH
382	XU	London ONT
385	HYX	Saginaw MI
388	DT	Detroit MI (Metro)
396	ZBB	South Bimini BAH
398	G	Windsor ONT
404	ZR	Sarnia ONT
411	VFU	Van Wert OH
414	PCW	Port Clinton, OH
417	HHG	Huntington IN

Russ also reports hearing the negative keying of UIZ/215 along with the normal keying. The negative keying is a kind of electronic mirror image of the correct keying. It puts dits and dahs into the spaces and converts the true dits and dahs into spaces. The negative keying of UIZ sounds like IKEI with a long dash. Negative keying is usually heard if you are close to the transmitter and a little off frequency. It is a transmitter problem rather than something wrong with your receiver or technique.

Note the different IDs and frequencies for various Detroit airports. Larger cities with multiple airports will have a number of beacons. Some are the primary homing beacons and others are runway markers. In Canada, the runway markers are usually single letter beacons.

Canadian beacons that have IDs of letter/number combinations are private beacons. These may or may not be on, depending on use of the landing field. While beacons operated by Transport Canada or local municipalities will operate continuously or with specific hours, private beacons may only operate when someone is expected to use them. Russ' 4L/335 is a good example. You may tune to this frequency many times before you happen to catch the beacon in operation. A certain amount of luck helps here.

MT Program Team

Kannon Shanmugam, Program Manager

4412 Turnberry Circle
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John Carson

Norman, Oklahoma

Jim Frimmel

Willow Park, Texas

program guide

Sunday

August 5th, 12th, 19th, 26th

- 0000 Radio for Peace Int'l: Earth Care. A look at environmental issues.
- 0015 Radio Beijing: Press Clippings. A review of the Chinese press.
- 0015 Radio Korea: News Commentary. Opinion on developments in Korea and worldwide.
- 0020 Radio Beijing: Travel Talk. An armchair tour of scenic spots in Chinese provinces.
- 0020 Radio Korea: Sites and Sounds. A look at Korea's tourist attractions and industry.
- 0028 Radio Beijing: Cooking Show. The Beijing Frugal Gourmet.
- 0030 BBC: The Ken Bruce Show. A mix of popular music and entertainment news.
- 0030 Radio for Peace Int'l: American Lutheran Church. Keith Suter presents a religious program.
- 0035 Radio Beijing: Music from China. Chinese music, from traditional to pop.
- 0035 Radio Korea: From Us to You. Listener letters, questions, and comments, interspersed with Korean music.
- 0036 Radio Budapest: Commentary. Interviews and in-depth analysis on the day's top news stories.
- 0041 Radio Budapest: Feature. Programming on various topics of importance to Hungarians.
- 0045 Radio for Peace Int'l: New Dimensions Radio. Innovative thinkers and ideas on the leading edge.
- 0101 BBC: Play of the Week. Hour-long drama selections.
- 0130 Radio Austria Int'l: Report from Austria. A magazine program, covering all aspects of Austrian life and events in the news, and opening with the latest news bulletin.
- 0130 Radio Budapest: Calling DX'ers and Radio

- Amateurs. News about shortwave radio listening.
- 0145 Radio for Peace Int'l: The Week in Review. A current-affairs program produced by United Nations Radio.
- 0209 BBC: British Press Review. Survey of editorial opinion in the British press.
- 0215 BBC: The Letters of Vincent Van Gogh. Letters from the great Dutch artist to his brother.
- 0215 Radio for Peace Int'l: World of Radio. Glenn Hauser's comprehensive communications magazine.
- 0230 BBC: Industrial Revolutions. Developments still going on in six key industries.
- 0245 Radio for Peace Int'l: RFP's Mailbag. Listener opinions, comments, suggestions, and questions.
- 0315 BBC: From Our Own Correspondent. In-depth news stories from correspondents worldwide.
- 0315 Radio Beijing: Press Clippings. See S 0015.
- 0315 Radio for Peace Int'l: Heartland. A program presented by Brian Baker.
- 0320 Radio Beijing: Travel Talk. See S 0020.
- 0328 Radio Beijing: Cooking Show. See S 0028.
- 0330 BBC: My Music. The return of the popular musical quiz (except August 5th: Novel Ideas, John Timpson presents a quiz show based on literature).
- 0335 Radio Beijing: Music from China. See S 0035.
- 0345 Radio for Peace Int'l: Consider the Alternatives. High-level experts on foreign policy issues.
- 0415 Radio Beijing: Press Clippings. See S 0015.
- 0415 Radio for Peace Int'l: Wings. Women's news and current affairs.
- 0420 Radio Beijing: Travel Talk. See S 0020.
- 0428 Radio Beijing: Cooking Show. See S 0028.
- 0430 BBC: Stuart Colman's Record Hop. Legendary rock 'n' roll music (except August 5th, 12th: The Tom Robinson Collection, a tour through the musician's personal record collection).
- 0435 Radio Beijing: Music from China. See S 0035.
- 0445 BBC: Personal View. A personal opinion on topical issues in British life.
- 0445 Radio for Peace Int'l: The Other Americas Radio. Current political issues facing Latin America.
- 0509 BBC: Twenty-Four Hours. Analysis of the main news of the day.
- 0515 Radio Beijing: Press Clippings. See S 0015.
- 0515 Radio for Peace Int'l: Social Thought. A program presented by M. Phillips.
- 0520 Radio Beijing: Travel Talk. See S 0020.

- 0528 Radio Beijing: Cooking Show. See S 0028.
- 0530 BBC: Financial Review. A look back at the financial week.
- 0530 Radio Austria Int'l: Report from Austria. See S 0130.
- 0535 Radio Beijing: Music from China. See S 0035.
- 0540 BBC: Words of Faith. People share how their scripture gives meaning to their lives.
- 0545 BBC: Letter from America. Alastair Cooke's distinctly British view of America.
- 0545 Radio for Peace Int'l: World Goodwill Forum. Groups furthering the interests of peace
- 0630 BBC: Jazz for the Asking. A jazz music request show.
- 0645 Radio for Peace Int'l: Earth Care. See S 0000.
- 0709 BBC: Twenty-Four Hours. See S 0509.
- 0715 Radio for Peace Int'l: New Dimensions Radio. See S 0045.
- 0730 BBC: From Our Own Correspondent. See S 0315.
- 0730 Radio Austria Int'l: Report from Austria. See S 0130.
- 0745 BBC: Book Choice. Short reviews of current or future best-sellers.
- 0750 BBC: Waveguide. How to hear the BBC better.
- 1115 BBC: From Our Own Correspondent. See S 0315.
- 1115 Radio Beijing: China Anthology. Episodes from China's past, with profiles of historical figures.
- 1115 Radio for Peace Int'l: The Other Americas Radio. See S 0445.
- 1115 Radio Korea: Echoes of Korean Music. Program details not available at press time.



James Latham is a program presenter, technician, and the station manager at Costa Rica's Radio for Peace International.

legend

- * The first four digits of an entry are the program start time in UTC.
- * The time is followed by the station name, program name, and a brief summary of the program's content.
- * Some listings may be followed by "See X 0000." The letter stands for a day of the week:

S=Sunday M=Monday
T=Tuesday W=Wednesday
H=Thursday F=Friday
A=Saturday

The four digits stand for a time in UTC. Listeners should check back to that date and time to find out more about that particular program.

- * All days are in UTC. Remember that if you are listening in North American prime time, it is actually the next morning UTC.

For example, if you are listening to a program at 8:01 pm [EDT] on your Thursday night, that's equal to 0001 UTC and therefore Friday morning UTC.

- * We suggest that you tune in to a program a few minutes before the

schedule start time, as some stations have tentative schedules which may slightly vary. Consult the frequency section beginning on page 65 for the frequencies in use by that station at that time.

newsline is your guide to news broadcasts on the air. All broadcasts are daily unless otherwise noted by brackets enclosing the day codes.

We invite listeners and stations to send program information to the program manager at the address above.

program guide

- 1125 Radio Beijing: Music Album. Music of all sorts, with a combination of traditional and Western selections.
- 1130 BBC: The Ken Bruce Show. See S 0030.
- 1130 Radio Austria Int'l: Shortwave Panorama. Developments in communications and shortwave radio news.
- 1135 Radio Korea: Shortwave Feedback. Han Hee Joo presents listener letters, views, and suggestions.
- 1140 Radio Beijing: Listeners' Letterbox. Listener letters and information about China.
- 1145 Radio for Peace Int'l: Social Thought. See S 0515.
- 1201 BBC: Play of the Week. See S 0101.
- 1215 Radio Beijing: China Anthology. See S 1115.
- 1215 Radio for Peace Int'l: World Goodwill Forum. See S 0545.
- 1225 Radio Beijing: Music Album. See S 1125.
- 1230 Radio Korea: Echoes of Korean Music. See S 1115.
- 1240 Radio Beijing: Listeners' Letterbox. See S 1140.
- 1250 Radio Korea: Shortwave Feedback. See S 1135.
- 1315 Radio Beijing: China Anthology. See S 1115.
- 1315 Radio for Peace Int'l: Earth Care. See S 0000.
- 1325 Radio Beijing: Music Album. See S 1125.
- 1330 Radio Austria Int'l: Report from Austria. See S 0130.
- 1340 Radio Beijing: Listeners' Letterbox. See S 1140.
- 1345 BBC: Sports Roundup. The day's sports news.
- 1401 BBC: Stone's America. Leslie Stone looks at everything from baseball to the growing African-American middle class.
- 1415 Radio Beijing: China Anthology. See S 1115.
- 1415 Radio Korea: Echoes of Korean Music. See S 1115.
- 1425 Radio Beijing: Music Album. See S 1125.
- 1430 Radio Austria Int'l: Shortwave Panorama. See S 1130.
- 1435 Radio Korea: Shortwave Feedback. See S 1135.
- 1440 Radio Beijing: Listeners' Letterbox. See S 1140.
- 1515 BBC: From the Proms. Recordings from this year's Promenade Concerts at London's Royal Albert Hall.
- 1515 Radio Beijing: China Anthology. See S 1115.
- 1525 Radio Beijing: Music Album. See S 1125.
- 1540 Radio Beijing: Listeners' Letterbox. See S 1140.
- 1615 BBC: Industrial Revolutions. See S 0230.

- 1615 Radio Beijing: China Anthology. See S 1115.
- 1615 Radio Korea: Echoes of Korean Music. See S 1115.
- 1625 Radio Beijing: Music Album. See S 1125.
- 1630 Radio Austria Int'l: Report from Austria. See S 0130.
- 1635 Radio Korea: Shortwave Feedback. See S 1135.
- 1640 Radio Beijing: Listeners' Letterbox. See S 1140.
- 1645 BBC: Letter from America. See S 0545.
- 2300 Radio for Peace Int'l: Peace Talks. Baha'i



Radio Beijing's first English language announcer Wei Lin, in 1950 and today (inset).

talks on issues such as peace education, and development and peace.

- 2305 BBC: Words of Faith. See S 0540.
- 2310 BBC: Book Choice. See S 0745.
- 2315 BBC: Letter from America. See S 0545.
- 2330 BBC: Stone's America. See S 1401.
- 2330 Radio for Peace Int'l: Scan. Keith Suter presents a religious program featuring ordinary people.

Monday

August 6th, 13th, 20th, 27th

- 0000 Radio for Peace Int'l: Peace Forum. The

search for world peace.

- 0015 Radio Beijing: China Anthology. See S 1115.
- 0015 Radio Korea: Echoes of Korean Music. See S 1115.
- 0025 Radio Beijing: Music Album. See S 1125.
- 0030 BBC: In Praise of God. A half-hour program of worship.
- 0035 Radio Korea: Shortwave Feedback. See S 1135.
- 0036 Radio Budapest: Commentary. See S 0036.
- 0040 Radio Beijing: Listeners' Letterbox. See S 1140.
- 0041 Radio Budapest: Feature. See S 0041.
- 0045 Radio for Peace Int'l: Steppin' Out of Babylon. Sue Supriano presents interviews with people concerned with freedom and liberty.
- 0101 BBC: Pillars of Society. Looks at the Royal Opera House and Marks and Spencer (except August 20th, 27th: Desert Island Discs, celebrity castaways pick their eight must-have records).
- 0115 Radio for Peace Int'l: Common Ground. A look at human rights around the world.
- 0130 Radio Austria Int'l: Report from Austria. See S 0130.
- 0145 BBC: Singers at Work. How singers practice and perfect their skill (except August 27th: Musical Feature, music programming of a topical nature).
- 0145 Radio for Peace Int'l: Second Opinion. A program from The Progressive.
- 0209 BBC: British Press Review. See S 0209.
- 0215 BBC: Andy Kershaw's World of Music. Exotic and innovative music from the world over.
- 0215 Radio for Peace Int'l: Earth Care. See S 0000.
- 0230 BBC: Science in Action. The latest in scientific developments.
- 0245 Radio for Peace Int'l: New Dimensions Radio. See S 0045.
- 0315 BBC: Good Books. A recommendation of a book to read.
- 0315 Radio Beijing: China Anthology. See S 1115.
- 0325 Radio Beijing: Music Album. See S 1125.
- 0340 Radio Beijing: Listeners' Letterbox. See S 1140.
- 0345 Radio for Peace Int'l: The Week in Review. See S 0145.
- 0415 Radio Beijing: China Anthology. See S 1115.
- 0415 Radio for Peace Int'l: Food for the Thoughtful. A program produced by Cultural Media Services.
- 0425 Radio Beijing: Music Album. See S 1125.
- 0430 BBC: Off the Shelf. A reading selected from the best of world literature.

newsline

- 0000 BBC: Newsdesk
- 0000 BBC: Newsdesk
- 0000 Christian Science Monitor: News
- 0000 Kol Israel: News
- 0000 Radio Australia: International Report
- 0000 Radio Beijing: News
- 0000 Radio Canada Int'l: News [S-M]
- 0000 Radio Havana Cuba: News [T-S]
- 0000 Radio Korea: News
- 0000 Radio Luxembourg: News
- 0000 Radio Moscow: News
- 0000 Radio New Zealand Int'l: News [M-A]
- 0000 Radio Yugoslavia: News
- 0000 Spanish National Radio: News
- 0000 Voice of America: News
- 0000 WWCR: USA Radio News [T-A]
- 0005 Radio Pyongyang: News
- 0010 Radio Beijing: News About China
- 0030 Christian Science Monitor (Asia): News [M]
- 0030 Christian Science Monitor: News [T-F]
- 0030 HCJB: Latin American News
- 0030 Radio Budapest: News
- 0030 Radio Havana Cuba: Newsbreak [T-S]
- 0030 Radio Moscow (World Service): News in Brief
- 0030 Radio Netherlands: News [T-S]

- 0030 Voice of America (Americas, East Asia): News (Special English) [T-S]
- 0030 Voice of America (East Asia): News (Special English) [M]
- 0051 Spanish National Radio: News Summary [S]
- 0055 KUSW: News [T-S]
- 0055 WRNO: ABC News [W-H, A]
- 0100 BBC: News Summary
- 0100 Belize Radio One: Network News
- 0100 Christian Science Monitor: News
- 0100 Deutsche Welle: World News
- 0100 Kol Israel: News
- 0100 Radio Australia: World and Australian News
- 0100 Radio Canada Int'l: News [S-M]
- 0100 Radio Havana Cuba: News [T-S]
- 0100 Radio Japan: News
- 0100 Radio Luxembourg: News
- 0100 Radio Moscow: News
- 0100 Radio New Zealand Int'l: News
- 0100 Radio Prague Int'l: News
- 0100 Radiotelevisione Italiana: News
- 0100 RAE, Buenos Aires: News
- 0100 Spanish National Radio: News
- 0100 Voice of America: News
- 0100 Voice of Indonesia: News
- 0100 WWCR: USA Radio News [T-S]
- 0115 Radio Havana Cuba: Cuban Nat'l News [T-S]

- 0125 HCJB: World News
- 0130 Christian Science Monitor (Asia): News [M]
- 0130 Christian Science Monitor: News [T-F]
- 0130 Radio Austria Int'l: News
- 0130 Radio Havana Cuba: Newsbreak [T-S]
- 0130 Radio Moscow (World Service): News in Brief
- 0145 Radio Berlin Int'l: News
- 0145 Radio for Peace Int'l: UN Radio News [T-A]
- 0151 Spanish National Radio: News Summary [S]
- 0155 KUSW: News [T-S]
- 0155 Voice of Indonesia: News in Brief
- 0200 BBC: World News
- 0200 Christian Science Monitor: News
- 0200 Deutsche Welle: World News
- 0200 Radio Australia: International Report
- 0200 Radio Bras, Brasilia: News [T-S]
- 0200 Radio Canada Int'l: News [T-A]
- 0200 Radio Havana Cuba: News [T-S]
- 0200 Radio Kiev: News
- 0200 Radio Moscow: News
- 0200 Radio New Zealand Int'l: News [A-S]
- 0200 Radio Romania Int'l: News
- 0200 Radio RSA: News
- 0200 Swiss Radio Int'l: News
- 0200 Voice of America: News
- 0200 Voice of Free China: News and Commentary
- 0200 WWCR: USA Radio News [T-A]

- 0440 Radio Beijing: Listeners' Letterbox. See S 1140.
- 0445 BBC: Journey to the Center of the Earth. Martin Redfern descends to the earth's core.
- 0445 Radio for Peace Int'l: Music from Everywhere. Jim Bean of Radio Earth presents musical selections.
- 0509 BBC: Twenty-Four Hours. See S 0509.
- 0515 Radio Beijing: China Anthology. See S 1115.
- 0515 Radio for Peace Int'l: World of Radio. See S 0215.
- 0525 Radio Beijing: Music Album. See S 1125.
- 0530 BBC: Waveguide. See S 0750.
- 0530 Radio Austria Int'l: Report from Austria. See S 0130.
- 0540 BBC: Words of Faith. See S 0540.
- 0540 Radio Beijing: Listeners' Letterbox. See S 1140.
- 0545 BBC: Recording of the Week. A personal choice from the latest classical music releases.
- 0545 Radio for Peace Int'l: Peace Talks. See S 2300.
- 0615 Radio for Peace Int'l: Scan. See S 2330.
- 0630 BBC: Stone's America. See S 1401.
- 0645 Radio for Peace Int'l: Peace Forum. See M 0000.
- 0709 BBC: Twenty-Four Hours. See S 0509.
- 0715 Radio for Peace Int'l: Steppin' Out of Babylon. See M 0045.
- 0730 BBC: Industrial Revolutions. See S 0230.
- 0730 Radio Austria Int'l: Report from Austria. See S 0130.
- 0745 Radio for Peace Int'l: Common Ground. See M 0115.
- 1115 BBC: Health Matters. New developments in the world of medical science and fitness.
- 1115 Radio Beijing: Current Affairs. An in-depth look at events and happenings in China.
- 1115 Radio Korea: News Commentary. See S 0015.
- 1120 Radio Korea: Seoul Calling. Music, features, and short interviews relating to Korea.
- 1130 BBC: Composer of the Month. A month-long series on a particular classical music composer.
- 1130 Radio Austria Int'l: Report from Austria. See S 0130.
- 1140 Radio Beijing: Learn to Speak Chinese. Chinese language lessons for English speakers.
- 1140 Radio Korea: Let's Learn Korean! Korean language lessons for English speakers.
- 1145 Radio for Peace Int'l: World of Radio. See S 0215.
- 1145 Radio Korea: Sports Roundup. Detailed news on sports in Korea.

- 0215 Radio Cairo: News
- 0230 Christian Science Monitor (Africa, Europe): News [M]
- 0230 Christian Science Monitor: News [T-F]
- 0230 HCJB: Latin American News
- 0230 Radio Havana Cuba: Newsbreak [T-S]
- 0230 Radio Moscow (World Service): News in Brief
- 0230 Radio Pakistan: News (Special English)
- 0230 Radio Portugal: News [T-A]
- 0230 Radio Tirana, Albania: News
- 0250 Radio Yerevan: News
- 0255 KUSW: News [T-S]
- 0300 BBC: World News
- 0300 Belize Radio One: News
- 0300 Christian Science Monitor: News
- 0300 Deutsche Welle: World News
- 0300 Radio Australia: World and Australian News
- 0300 Radio Beijing: News
- 0300 Radio Berlin Int'l: News
- 0300 Radio Havana Cuba: News [T-S]
- 0300 Radio Japan: News
- 0300 Radio Moscow: News
- 0300 Radio New Zealand Int'l: News [A-S]
- 0300 Radio Prague Int'l: News
- 0300 RAE, Buenos Aires: News
- 0300 Voice of America: News
- 0300 Voice of Free China: News and Commentary

the program file

August 1990

BBC THIS MONTH: On the BBC this month, catch a gala concert in honor of the Queen Mother on her 90th birthday, August 4th at 1830 UTC. The semifinals of the "Brain of Britain 1990" competition also feature prominently this month -- with the first on August 27th at 1215 UTC, repeated on August 30th at 0330 UTC.

British television personality Sue Lawley hosts "Desert Island Discs," which starts a new season this month. Famous personalities are hypothetically cast off on the ever-trite desert island and get to take eight records with them. The series runs on Mondays at 0101 and 1515 UTC, starting on August 20th.

Also in music, catch live concerts from the Proms at 1830 UTC on the 1st, 7th, 10th, 11th, 18th, 23rd, 25th, 27th, and 28th.

And be prepared for cricket interruptions -- not bugs, but the sport, as India and England do battle on various days throughout the month. Play-by-play is at 1115 and 1345 UTC.

RADIO MOSCOW AXES PROGRAMS: "Actuality," "Sidelights on Soviet Life," "People," and "DX Program." What do they have in common? They've all been cut from the latest Radio Moscow North American Service shakeup. One might surmise that

Radio Moscow has been having financial problems: they didn't even mail their March to September World Service schedules until late June! We'll have the schedules for both the North American and World Services next month.

OOPS DOWN UNDER: In their last schedule, Radio Australia made one of the biggest mistakes in recent memory: they printed the 0000-0500 UTC program block one day off! (Thanks to Mike Fern and MT's Glenn Hauser, via Bruce MacGibbon's *DX Spread*)

PERESTROIKA IN THE PROGRAM SECTION: This month, we're proud to unveil a revamped program section. Not revamped on the surface, but revamped in substance; we've completely redone all 5,000 of the listings in the main database, and all 650 newline listings. We're also proud to present three stations which make their first appearance in the listing this month: Radio for Peace International, Radio Beijing and Radio Korea. If you've got any other stations you'd like to see included, please let us know.

-- Kannon Shanmugam
Program Manager

- 1215 BBC: Brain of Britain 1990. Robert Robinson presents "Jeopardy!" with a twist in a general-knowledge quiz.
- 1215 Radio Beijing: Current Affairs. See M 1115.
- 1215 Radio for Peace Int'l: Peace Talks. See S 2300.
- 1230 Radio Korea: News Commentary. See S 0015.
- 1235 Radio Korea: Seoul Calling. See M 1120.

- 1240 Radio Beijing: Learn to Speak Chinese. See M 1140.
- 1245 BBC: Sports Roundup. See S 1330.
- 1245 Radio for Peace Int'l: Scan. See S 2330.
- 1255 Radio Korea: Let's Learn Korean! See M 1140.
- 1300 Radio Korea: Sports Roundup. See M 1145.
- 1309 BBC: Twenty-Four Hours. See S 0509.
- 1315 Radio Beijing: Current Affairs. See M 1115.

- 0300 Voice of Turkey: News
- 0300 WRNO: ABC News [F]
- 0300 WWCR: USA Radio News [T-S]
- 0309 BBC: News About Britain
- 0310 Radio Beijing: News About China
- 0315 Radio Cairo: News
- 0315 Radio France Int'l: News
- 0315 Radio Havana Cuba: Cuban Nat'l News [T-S]
- 0325 HCJB: World News
- 0330 Christian Science Monitor (Africa, Europe): News [M]
- 0330 Christian Science Monitor: News [T-F]
- 0330 Radio Havana Cuba: Newsbreak [T-S]
- 0330 Radio Moscow (World Service): News in Brief
- 0330 Radio Netherlands: News [T-S]
- 0330 Radio Tirana, Albania: News
- 0330 UAE Radio, Dubai: News
- 0345 Radio Berlin Int'l: News
- 0350 Radiotelevisione Italiana: News
- 0355 KUSW: News [T-S]
- 0355 Radio Japan: News [M-F]
- 0400 BBC: Newsdesk
- 0400 Christian Science Monitor: News
- 0400 Deutsche Welle: World News
- 0400 Kol Israel: News
- 0400 Radio Australia: International Report
- 0400 Radio Beijing: News

- 0400 Radio Canada Int'l: News
- 0400 Radio Havana Cuba: News [T-S]
- 0400 Radio Moscow: News
- 0400 Radio New Zealand Int'l: News [A-S]
- 0400 Radio Romania Int'l: News
- 0400 Radio Tanzania: News
- 0400 Swiss Radio Int'l: News
- 0400 Voice of America: News
- 0400 WWCR: USA Radio News [M-A]
- 0405 Radio Pyongyang: News
- 0410 Radio Beijing: News About China
- 0425 Radiotelevisione Italiana: News
- 0430 Christian Science Monitor (Africa, Europe, NE Asia): News [M]
- 0430 Christian Science Monitor: News [T-F]
- 0430 Radio Canada Int'l: News [M-F]
- 0430 Radio Havana Cuba: Newsbreak [T-S]
- 0430 Radio Moscow (World Service): News in Brief
- 0430 Radio Tirana, Albania: News
- 0455 KUSW: News [S, T-F]
- 0455 Radio Tanzania: News
- 0500 BBC: World News
- 0500 Christian Science Monitor: News
- 0500 Deutsche Welle: World News
- 0500 HCJB: Latin American News
- 0500 Radio Australia: World and Australian News
- 0500 Radio Beijing: News

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The BBC World Service sports department (from left): Martin Fookes, Mike Costello, Barry Millns, Harry Peart, Geoff Parker, Chris Florence, and Linda Spurr.

- 1315 Radio for Peace Int'l: Peace Forum. See M 0000.
- 1330 BBC: Andy Kershaw's World of Music. See M 0215.
- 1330 Radio Austria Int'l: Report from Austria. See S 0130.
- 1340 Radio Beijing: Learn to Speak Chinese. See M 1140.
- 1345 BBC: Personal View. See S 0445.
- 1405 BBC: Outlook. Conversation, controversy, and color from Britain and the rest of the world.
- 1415 Radio Beijing: Current Affairs. See M 1115.
- 1415 Radio Korea: News Commentary. See S 0015.
- 1420 Radio Korea: Seoul Calling. See M 1120.
- 1430 BBC: Anything Goes. Sounds from the BBC archives as requested by listeners.
- 1430 BBC: Off the Shelf. See M 0430.
- 1430 Radio Austria Int'l: Report from Austria. See S 0130.
- 1440 Radio Beijing: Learn to Speak Chinese. See M 1140.
- 1440 Radio Korea: Let's Learn Korean! See M 1140.
- 1445 BBC: The Letters of Van Gogh. See S 0215.

- 1445 Radio Korea: Sports Roundup. See M 1145.
- 1515 BBC: Pillars of Society (except August 20th, 27th: Desert Island Discs). See M 0101.
- 1515 Radio Beijing: Current Affairs. See M 1115.
- 1515 Radio Budapest: Calling DX'ers and Radio Amateurs. See S 0130.
- 1540 Radio Beijing: Learn to Speak Chinese. See M 1140.
- 1615 BBC: Good Books. See M 0315.
- 1615 Radio Beijing: Current Affairs. See M 1115.
- 1615 Radio Korea: News Commentary. See S 0015.
- 1620 Radio Korea: Seoul Calling. See M 1120.
- 1630 BBC: Health Matters. See M 1115.
- 1630 Radio Austria Int'l: Report from Austria. See S 0130.
- 1640 Radio Beijing: Learn to Speak Chinese. See M 1140.
- 1640 Radio Korea: Let's Learn Korean! See M 1140.
- 1645 BBC: The World Today. News analysis on a selected location or event in the news.
- 1645 Radio Korea: Sports Roundup. See M 1145.
- 2305 BBC: Commentary. Background to the news from a wide range of specialists.

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- 0500 Radio Havana Cuba: News [T-S]
- 0500 Radio Japan: News
- 0500 Radio Moscow: News
- 0500 Radio New Zealand Int'l: News
- 0500 Spanish National Radio: News
- 0500 Voice of America: News
- 0500 WWCR: USA Radio News [T-A]
- 0510 Radio Beijing: News About China
- 0510 Radio Botswana: News
- 0515 Radio Berlin Int'l: News
- 0515 Radio Canada Int'l: News [M-F]
- 0515 Radio Havana Cuba: Cuban Nat'l News [T-S]
- 0530 Christian Science Monitor (Africa, Europe, NE Asia): News [M]
- 0530 Christian Science Monitor: News [T-F]
- 0530 Radio Austria Int'l: News
- 0530 Radio Havana Cuba: Newsbreak [T-S]
- 0530 Radio Jordan: News
- 0530 Radio Kuwait: News
- 0530 Radio Moscow (World Service): News in Brief
- 0530 Radio Romania Int'l: News
- 0530 UAE Radio, Dubai: News
- 0530 Voice of Nigeria: News
- 0545 Radio Berlin Int'l: News
- 0545 Voice of Nigeria: News About Nigeria

- 0551 Spanish National Radio: News Summary [S]
- 0555 HCJB: World News
- 0555 KUSW: News [S, T-F]
- 0600 BBC: Newsdesk
- 0600 Christian Science Monitor: News
- 0600 Deutsche Welle: World News
- 0600 Radio Australia: International Report
- 0600 Radio Havana Cuba: News [T-S]
- 0600 Radio Moscow: News
- 0600 Radio New Zealand Int'l: News
- 0600 Voice of America: News
- 0605 Radio Pyongyang: News
- 0630 BRT, Brussels: News [M-F]
- 0630 Christian Science Monitor: News [M-F]
- 0630 Radio Finland: Northern Report [T-A]
- 0630 Radio Havana Cuba: Newsbreak [T-S]
- 0630 Radio Moscow (World Service): News in Brief
- 0630 Radio Polonia: News
- 0630 Radio Tirana, Albania: News
- 0630 Swiss Radio Int'l: News
- 0645 Radio Romania Int'l: News
- 0655 KUSW: News [S]
- 0700 BBC: World News
- 0700 Christian Science Monitor: News
- 0700 Radio Australia: World and Australian News
- 0700 Radio Havana Cuba: News [T-S]
- 0700 Radio Japan: News

- 2310 BBC: Financial News. News of commodity prices and significant moves in currency and stock markets.
- 2315 BBC: Telling Lies. Anecdotes about the consequences of lying.
- 2330 BBC: Multitrack 1. Tim Smith presents what's hot on the British pop music charts.
- 2330 Radio for Peace Int'l: Steppin' Out of Babylon. See M 0045.
- 2336 Radio Budapest: Commentary. See S 0036.
- 2341 Radio Budapest: Sportarama. Results from European sports events in the week just past.

Tuesday

August 7th, 14th, 21st, 28th

- 0000 Radio for Peace Int'l: Wings. See S 0415.
- 0015 Radio Beijing: Current Affairs. See M 1115.
- 0015 Radio Korea: News Commentary. See S 0015.
- 0020 Radio Korea: Seoul Calling. See M 1120.
- 0030 BBC: Megamix. A compendium of music, sport, fashion, health, travel, news and views for young people.
- 0030 Radio for Peace Int'l: New Dimensions Radio. See S 0045.
- 0036 Radio Budapest: Commentary. See S 0036.
- 0040 Radio Beijing: Learn to Speak Chinese. See M 1140.
- 0040 Radio Korea: Let's Learn Korean! See M 1140.
- 0041 Radio Budapest: Sportarama. See M 2341.
- 0045 Radio Korea: Sports Roundup. See M 1145.
- 0101 BBC: Outlook. See M 1405.
- 0125 BBC: Financial News. See M 2310.
- 0130 BBC: Short Story. Brief tales written by BBC listeners.
- 0130 Radio Austria Int'l: Report from Austria. See S 0130.
- 0130 Radio for Peace Int'l: European Profile. Radio Netherlands' correspondent reports on European politics and society.
- 0145 BBC: Europe's World. A magazine program reflecting life in Europe and its links with other parts of the world.
- 0200 Radio for Peace Int'l: United Nations Radio. Various programming produced by the UN.
- 0209 BBC: British Press Review. See S 0209.
- 0215 BBC: Network UK. A look at the issues and events that affect the lives of people throughout the UK.
- 0230 BBC: Sports International. Feature program on a topic or person making sports

- 0700 Radio Moscow (World Service): News
- 0700 Radio New Zealand Int'l: News
- 0700 Radio Tirana, Albania: News
- 0700 Voice of Free China: News and Commentary
- 0715 Radio Havana Cuba: Cuban Nat'l News [T-S]
- 0730 Christian Science Monitor: News [M-F]
- 0730 HCJB: Latin American News
- 0730 Radio Austria Int'l: News
- 0730 Radio Havana Cuba: Newsbreak [T-S]
- 0730 Radio Moscow (World Service): News in Brief
- 0730 Radio Netherlands: News [M-A]
- 0745 Radio Berlin Int'l: News
- 0755 KUSW: News [S]
- 0755 Radio Japan: News [M-F]
- 0800 BBC: World News
- 0800 Christian Science Monitor: News
- 0800 Radio Australia: International Report
- 0800 Radio Finland: Northern Report [T-A]
- 0800 Radio Jordan: News Summary
- 0800 Radio Korea: News
- 0800 Radio Moscow (World Service): News
- 0800 Radio New Zealand Int'l: News
- 0800 Voice of Indonesia: News
- 0805 Radio Pyongyang: News
- 0825 HCJB: World News
- 0830 Christian Science Monitor: News [M-F]
- 0830 Radio Beijing: News

program

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- headlines.
0315 BBC: The World Today. See M 1645.
0315 Radio Beijing: Current Affairs. See M 1115.
0330 BBC: John Peel. Tracks from newly released albums and singles from the contemporary music scene.
0340 Radio Beijing: Learn to Speak Chinese. See M 1140.
0415 Radio Beijing: Current Affairs. See M 1115.
0430 BBC: Off the Shelf. See M 0430.
0430 BBC: Stuart Colman's Record Hop. Legendary rock 'n' roll music (except August 7th, 14th: The Tom Robinson Collection, a tour through the musician's personal record collection).
0440 Radio Beijing: Learn to Speak Chinese. See M 1140.
0445 BBC: New Ideas. A radio shop window for new products and inventions.
0455 BBC: Book Choice. See S 0745.
0509 BBC: Twenty-Four Hours. See S 0509.
0515 Radio Beijing: Current Affairs. See M 1115.
0530 BBC: Financial News. See M 2310.
0530 Radio Austria Int'l: Report from Austria. See S 0130.
0540 BBC: Words of Faith. See S 0540.
0540 Radio Beijing: Learn to Speak Chinese. See M 1140.
0545 BBC: The World Today. See M 1645.
0630 BBC: Crosstown Traffic. The life and work of Jimi Hendrix, on the 20th anniversary of his death.
0709 BBC: Twenty-Four Hours. See S 0509.
0730 BBC: Europe's World. See T 0145.
0730 Radio Austria Int'l: Report from Austria. See S 0130.
0745 BBC: Network UK. See T 0215.
1115 BBC: Waveguide. See S 0750.
1115 Radio Beijing: Current Affairs. See M 1115.
1115 Radio Korea: News Commentary. See S 0015.
1120 Radio Korea: Seoul Calling. See M 1120.
1125 BBC: Book Choice. See S 0745.
1130 BBC: Megamix. See T 0030.
1130 Radio Austria Int'l: Report from Austria. See S 0130.
1140 Radio Korea: Let's Learn Korean! See M 1140.
1145 Radio Korea: Korean Cultural Variety. A look at Korean cultural and artistic traditions.
1215 BBC: Multitrack 1: Top 20. See M 2330.
1215 Radio Beijing: Current Affairs. See M 1115.
1230 Radio Korea: News Commentary. See S 0015.
1235 Radio Korea: Seoul Calling. See M 1120.
1240 Radio Beijing: Listeners' Letterbox. See S 1140.
1240 Radio Beijing: Listeners' Letterbox. See S 1140.
1245 BBC: Sports Roundup. See S 1330.
1255 Radio Korea: Let's Learn Korean! See M 1140.
1300 Radio Korea: Korean Cultural Variety. See T 1145.
1309 BBC: Twenty-Four Hours. See S 0509.
1315 Radio Beijing: Current Affairs. See M 1115.
1330 BBC: Network UK. See T 0215.
1330 Radio Austria Int'l: Report from Austria. See S 0130.
1340 Radio Beijing: Listeners' Letterbox. See S 1140.
1405 BBC: Outlook. See M 1405.
1415 Radio Beijing: Current Affairs. See M 1115.
1415 Radio Korea: News Commentary. See S 0015.
1420 Radio Korea: Seoul Calling. See M 1120.
1430 BBC: Off the Shelf. See M 0430.
1430 Radio Austria Int'l: Report from Austria. See S 0130.
1440 Radio Beijing: Listeners' Letterbox. See S 1140.
1440 Radio Korea: Let's Learn Korean! See M 1140.
1445 BBC: Singers at Work (except August 28th: Musical Feature). See M 0145.
1445 Radio Korea: Korean Cultural Variety. See T 1145.
1515 BBC: A Jolly Good Show. Dave Lee Travis presents listener record requests and dedications, and the UK's top ten albums.
1515 Radio Beijing: Current Affairs. See M 1115.
1540 Radio Beijing: Listeners' Letterbox. See S 1140.
1615 BBC: Omnibus. A half-hour program on practically any topic.
1615 Radio Beijing: Current Affairs. See M 1115.
1615 Radio Korea: News Commentary. See S 0015.
1620 Radio Korea: Seoul Calling. See M 1120.
1630 Radio Austria Int'l: Report from Austria. See S 0130.
1640 Radio Beijing: Listeners' Letterbox. See S 1140.
1640 Radio Korea: Let's Learn Korean! See M 1140.
1645 BBC: The World Today. See M 1645.
1645 Radio Korea: Korean Cultural Variety. See T 1145.
2300 Radio for Peace Int'l: RFPI's Mailbag. See S 0245.
2305 BBC: Commentary. See M 2305.
2310 BBC: Financial News. See M 2310.
2315 BBC: From the Proms. See S 1515.
2330 Radio for Peace Int'l: Earth Care. See S 0000.



QSL from Radio Budapest courtesy of Ray Labrie, NH

- 2336 Radio Budapest: Commentary. See S 0036.
2341 Radio Budapest: Feature. See S 0041.

Wednesday

August 1st, 8th, 15th, 22nd, 29th

- 0000 Radio for Peace Int'l: Intervox (biweekly). Concerns of the ecumenical movement of Christian churches worldwide.
0015 Radio Beijing: Current Affairs. See M 1115.
0015 Radio Korea: News Commentary. See S 0015.
0020 Radio Korea: Seoul Calling. See M 1120.
0030 BBC: Omnibus. See T 1615.
0030 Radio for Peace Int'l: World Citizen's Hour. Opinions and various types of programs from around the world.
0036 Radio Budapest: Commentary. See S 0036.
0040 Radio Beijing: Listeners' Letterbox. See S 1140.

- 0830 Radio Finland: Northern Report [T-A]
0830 Radio Moscow (World Service): News in Brief
0830 Radio Netherlands: News [M-A]
0830 Swiss Radio Int'l: News
0840 Radio Beijing: News About China
0855 KUSW: News [S]
0855 Voice of Indonesia: News in Brief
0900 BBC: World News
0900 BRT, Brussels: News [M-F]
0900 Christian Science Monitor: News
0900 Deutsche Welle: World News
0900 Radio Australia: World and Australian News
0900 Radio Berlin Int'l: News
0900 Radio Japan: News
0900 Radio Moscow (World Service): News
0900 Radio New Zealand Int'l: News [A]
0930 Christian Science Monitor: News [M-F]
0930 Deutsche Welle (Africa): African News [M-F]
0930 Radio Beijing: News
0930 Radio Moscow (World Service): News in Brief
0940 Radio Beijing: News About China
0945 Radio Berlin Int'l: News
0955 KUSW: News [S]
0955 Radio Japan: News [M-F]
1000 BBC: News Summary
1000 Christian Science Monitor: News
1000 HCJB: Latin American News

- 1000 Kol Israel: News
1000 Radio Australia: International Report
1000 Radio Jordan: News Summary
1000 Radio Moscow (World Service): News
1000 Radio New Zealand Int'l: News [A]
1000 Radio Tanzania: News
1000 Swiss Radio Int'l: News
1000 Voice of America: News
1030 Christian Science Monitor: News [M-F]
1030 Radio Austria Int'l: News [M-F]
1030 Radio Korea: News [M-S]
1030 Radio Moscow (World Service): News in Brief
1030 Radio Netherlands: News [M-A]
1030 UAE Radio, Dubai: News
1050 Radio Finland: Northern Report [T-F]
1055 HCJB: World News
1055 KUSW: News [S]
1100 BBC: World News
1100 Christian Science Monitor: News
1100 Deutsche Welle: World News
1100 Radio Australia: World and Australian News
1100 Radio Beijing: News
1100 Radio Berlin Int'l: News
1100 Radio Japan: News
1100 Radio Jordan: News Summary
1100 Radio Korea: News
1100 Radio Moscow (World Service): News

- 1100 Radio RSA: News
1100 Swiss Radio Int'l: News
1100 Trans World Radio, Bonaire: News [M-F]
1100 Voice of America: News
1105 Radio Pakistan: News (Special English)
1105 Radio Pyongyang: News
1109 BBC: News About Britain
1110 Belize Radio One: News Summary [T-F]
1110 Radio Beijing: News About China
1110 Radio Botswana: News [M-F]
1120 Belize Radio One: News Summary [A]
1125 Belize Radio One: News Summary [M]
1125 Radio Botswana: News [A-S]
1130 Christian Science Monitor: News [M-F]
1130 Deutsche Welle: African News [M-F]
1130 Radio Austria Int'l: News [M-F]
1130 Radio Moscow (World Service): News in Brief
1130 Radio Netherlands: News [M-A]
1145 Radio Berlin Int'l: News
1152 Radio RSA: News in Brief
1155 KUSW: News [S]
1155 Radio Japan: News [M-F]
1200 BBC: News Summary [S]; Newsreel [M-A]
1200 Christian Science Monitor: News
1200 Radio Australia: International Report
1200 Radio Beijing: News
1200 Radio Canada Int'l: World Report [M-F]

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- 0040 Radio Korea: Let's Learn Korean! See M 1140.
 0041 Radio Budapest: Feature. See S 0041.
 0045 Radio Korea: Korean Cultural Variety. See T 1145.
 0101 BBC: Outlook. See M 1405.
 0125 BBC: Financial News. See M 2310.
 0130 BBC: Endangered People. A look at tribal groups -- including Native Americans -- and prospects for their future.
 0130 Radio Austria Int'l: Report from Austria. See S 0130.
 0130 Radio Budapest: Calling DX'ers and Radio Amateurs. See S 0130.
 0130 Radio for Peace Int'l: Science in Society. Details not available at press time.
 0145 BBC: Country Style. David Allan presents British country music.
 0200 Radio for Peace Int'l: World of Radio. See S 0215.
 0209 BBC: British Press Review. See S 0209.

- 0530 BBC: Financial News. See M 2310.
 0530 Radio Austria Int'l: Report from Austria. See S 0130.
 0540 BBC: Words of Faith. See S 0540.
 0540 Radio Beijing: Listeners' Letterbox. See S 1140.
 0545 BBC: The World Today. See M 1645.
 0630 BBC: Meridian. The world of the arts, including music, drama, and books.
 0709 BBC: Twenty-Four Hours. See S 0509.
 0730 BBC: Development '90. Aid and development issues.
 0730 Radio Austria Int'l: Report from Austria. See S 0130.
 1115 BBC: Country Style. See W 0145.
 1115 Radio Beijing: Current Affairs. See M 1115.
 1115 Radio Korea: News Commentary. See S 0015.
 1120 Radio Korea: Seoul Calling. See M 1120.
 1130 BBC: Meridian. See W 0630.
 1130 Radio Austria Int'l: Report from Austria. See S 0130.

1140.
 1300 Radio Korea: Pulse of Korea. See W 1145.
 1309 BBC: Twenty-Four Hours. See S 0509.
 1315 Radio Beijing: Current Affairs. See M 1115.
 1330 BBC: Development '90. See W 0730.
 1330 Radio Austria Int'l: Report from Austria. See S 0130.
 1340 Radio Beijing: Learn to Speak Chinese. See M 1140.
 1405 BBC: Outlook. See M 1405.
 1415 Radio Beijing: Current Affairs. See M 1115.
 1415 Radio Korea: News Commentary. See S 0015.
 1420 Radio Korea: Seoul Calling. See M 1120.
 1430 BBC: Off the Shelf. See M 0430.
 1430 Radio Austria Int'l: Report from Austria. See S 0130.
 1440 Radio Beijing: Learn to Speak Chinese. See M 1140.
 1440 Radio Korea: Let's Learn Korean! See M 1140.
 1445 BBC: Business Matters. See W 0430.
 1445 Radio Korea: Pulse of Korea. See W 1145.
 1515 BBC: Telling Lies. See M 2315.
 1515 Radio Beijing: Current Affairs. See M 1115.
 1530 BBC: The Senses. Dramas correlated to the five senses -- plus one (except August 1st, 29th: Two Cheers..., a satirical look at the month just past).
 1540 Radio Beijing: Learn to Speak Chinese. See M 1140.
 1615 BBC: Crosstown Traffic. See T 0630.
 1615 Radio Beijing: Current Affairs. See M 1115.
 1615 Radio Korea: News Commentary. See S 0015.
 1620 Radio Korea: Seoul Calling. See M 1120.
 1630 Radio Austria Int'l: Report from Austria. See S 0130.
 1640 Radio Beijing: Learn to Speak Chinese. See M 1140.
 1640 Radio Korea: Let's Learn Korean! See M 1140.
 1645 BBC: The World Today. See M 1645.
 1645 Radio Korea: Pulse of Korea. See W 1145.
 2305 BBC: Commentary. See M 2305.
 2310 BBC: Financial News. See M 2310.
 2315 BBC: Good Books. See M 0315.
 2330 BBC: Multitrack 2. Graham Bannerman presents new pop music records, interviews, news, and competitions.
 2330 Radio for Peace Int'l: Consider the Alternatives. See S 0345.
 2336 Radio Budapest: Commentary. See S 0036.
 2341 Radio Budapest: The Weeklies. A look at the top stories making news headlines in Hungary's weekly papers.



Staff members at Radio Korea's English Service (from left): Laura Halloran, Kim Pyong-Ryol, Koog Soon-Yup, Yu Mi-Na, Chae Hong-Pyo, and Han Hee-Joo.

- 0215 BBC: Health Matters. See M 1115.
 0230 BBC: Crosstown Traffic. See T 0630.
 0230 Radio for Peace Int'l: RFPI's Mailbag. See S 0245.
 0315 BBC: The World Today. See M 1645.
 0315 Radio Beijing: Current Affairs. See M 1115.
 0330 BBC: Pop Science. Science for young people, combined with music requests.
 0340 Radio Beijing: Listeners' Letterbox. See S 1140.
 0415 Radio Beijing: Current Affairs. See M 1115.
 0430 BBC: Off the Shelf. See M 0430.
 0440 Radio Beijing: Listeners' Letterbox. See S 1140.
 0445 BBC: Country Style. See W 0145.
 0509 BBC: Twenty-Four Hours. See S 0509.
 0515 Radio Beijing: Current Affairs. See M 1115.

- 1140 Radio Beijing: Learn to Speak Chinese. See M 1140.
 1140 Radio Korea: Let's Learn Korean! See M 1140.
 1145 Radio Korea: Pulse of Korea. Reports on the development of Korea.
 1215 BBC: Japan 5, Wales Nil. A Welsh writer reflects on a year spent in Japan.
 1215 Radio Beijing: Current Affairs. See M 1115.
 1225 BBC: The Farming World. Issues in agriculture.
 1230 Radio Korea: News Commentary. See S 0015.
 1235 Radio Korea: Seoul Calling. See M 1120.
 1240 Radio Beijing: Learn to Speak Chinese. See M 1140.
 1245 BBC: Sports Roundup. See S 1330.
 1255 Radio Korea: Let's Learn Korean! See M 1140.

newslines cont'd from p.59

- 1200 Radio Finland: Northern Report [T-F]
 1200 Radio Jordan: News
 1200 Radio Moscow (World Service): News
 1200 Radio Poland: News
 1200 Radio Romania Int'l: News
 1200 Radio RSA: News
 1200 Radio Tashkent: News
 1200 Radio Yugoslavia: News
 1200 Swiss Radio Int'l: News
 1200 Voice of America: News
 1210 Radio Beijing: News About China
 1215 Radio Berlin Int'l: News
 1215 Radio Korea: News
 1230 BRT, Brussels: News [M-F]
 1230 Christian Science Monitor: News [M-F]
 1230 Radio France Int'l: News
 1230 Radio Moscow (World Service): News in Brief
 1230 Radio Poland: News
 1230 Trans World Radio, Bonaire: News [M-A]
 1230 Voice of Turkey: News
 1245 Radio Berlin Int'l: News
 1300 BBC: News and Twenty-Four Hours on Sunday [S]; World News [M-A]
 1300 Belize Radio One: News
 1300 Christian Science Monitor: News

- 1300 Radio Australia: World and Australian News
 1300 Radio Beijing: News
 1300 Radio Canada Int'l: News
 1300 Radio Finland: Northern Report [T-A]
 1300 Radio Moscow (World Service): News
 1300 Radio Peace and Progress: News
 1300 Radio Romania Int'l: News
 1300 Radio RSA: News
 1300 Radio Tanzania: News [A-S]
 1300 Radio Tirana, Albania: News
 1300 Trans World Radio, Bonaire: News [S]
 1300 Voice of America: News
 1300 WWC: USA Radio News [M-F]
 1305 Radio Pyongyang: News
 1310 Radio Beijing: News About China
 1330 Christian Science Monitor: News [M-F]
 1330 Radio Austria Int'l: News
 1330 Radio Moscow (World Service): News in Brief
 1330 Radio Tashkent: News
 1330 Swiss Radio Int'l: News
 1330 UAE Radio, Dubai: News
 1330 Voice of America: News (Special English)
 1345 Radio Berlin Int'l: News
 1352 Radio RSA: News in Brief
 1400 BBC: News Summary [A-S]; 5-Minute News [M-F]
 1400 Christian Science Monitor: News
 1400 Radio Australia: International Report

- 1400 Radio Beijing: News
 1400 Radio France Int'l: News
 1400 Radio Japan: News
 1400 Radio Jordan: News Summary
 1400 Radio Korea: News
 1400 Radio Moscow (World Service): News
 1400 Radio RSA: News
 1400 Voice of America: News
 1400 WWC: USA Radio News [M-F]
 1405 Radio Finland: Northern Report [T-A]
 1405 Radio Pyongyang: News
 1410 Radio Beijing: News About China
 1415 Radio Canada Int'l (Central/Eastern Europe): News
 1430 Christian Science Monitor: News [M-F]
 1430 Radio Austria Int'l: News [M-F]
 1430 Radio Moscow (World Service): News in Brief
 1430 Radio Netherlands: News [M-A]
 1430 Radio Poland: News
 1430 Radio Prague Int'l: News
 1445 Radio Berlin Int'l: News
 1500 BBC: Newsreel
 1500 Belize Radio One: News [M-A]
 1500 Christian Science Monitor: News
 1500 Deutsche Welle: World News
 1500 Radio Australia: World and Australian News
 1500 Radio Beijing: News

program guide

Thursday

August 2nd, 9th, 16th, 23rd, 30th

- 0000 Radio for Peace Int'l: Voices of Our World. Interviews and reports from around the world.
- 0015 Radio Beijing: Current Affairs. See M 1115.
- 0015 Radio Korea: News Commentary. See S 0015.
- 0020 Radio Korea: Seoul Calling. See M 1120.
- 0030 BBC: The Senses (except August 2nd, 30th: Two Cheers...). See W 1530.
- 0030 Radio for Peace Int'l: New Dimensions Radio. See S 0045.
- 0036 Radio Budapest: Commentary. See S 0036.
- 0040 Radio Beijing: Learn to Speak Chinese. See M 1140.
- 0040 Radio Korea: Let's Learn Korean! See M 1140.
- 0041 Radio Budapest: The Weeklies. See W 2341.
- 0045 Radio Korea: Pulse of Korea. See W 1145.
- 0101 BBC: Outlook. See M 1405.
- 0125 BBC: Financial News. See M 2310.
- 0130 BBC: Waveguide. See S 0750.
- 0130 Radio Austria Int'l: Report from Austria. See S 0130.
- 0130 Radio Budapest: Calling DX'ers and Radio Amateurs. See S 0130.
- 0130 Radio for Peace Int'l: University for Peace News. Developments at the university which sponsors the station.
- 0140 BBC: Book Choice. See S 0745.
- 0145 BBC: Society Today. A weekly look at the changes in Britain.
- 0200 Radio for Peace Int'l: United Nations Radio. See T 0200.
- 0209 BBC: British Press Review. See S 0209.
- 0215 BBC: Network UK. See T 0215.
- 0230 BBC: The Lives of Joseph Stalin. Stalin's role in history and its interpretation (except August 23rd, 30th: Assignment, examinations of current topical issues).
- 0315 BBC: The World Today. See M 1645.
- 0315 Radio Beijing: Current Affairs. See M 1115.
- 0330 BBC: Brain of Britain 1990. See M 1215.
- 0340 Radio Beijing: Learn to Speak Chinese. See M 1140.
- 0415 Radio Beijing: Current Affairs. See M 1115.
- 0430 BBC: Off the Shelf. See M 0430.
- 0440 Radio Beijing: Learn to Speak Chinese. See M 1140.
- 0445 BBC: Andy Kershaw's World of Music. See M 0215.
- 0509 BBC: Twenty-Four Hours. See S 0509.
- 0515 Radio Beijing: Current Affairs. See M 1115.

- 0530 BBC: Financial News. See M 2310.
- 0530 Radio Austria Int'l: Report from Austria. See S 0130.
- 0540 BBC: Words of Faith. See S 0540.
- 0540 Radio Beijing: Learn to Speak Chinese. See M 1140.
- 0545 BBC: The World Today. See M 1645.
- 0630 BBC: Japan 5, Wales Nil. See W 1215.
- 0640 BBC: The Farming World. See W 1225.
- 0709 BBC: Twenty-Four Hours. See S 0509.
- 0730 BBC: Write On.... Paddy Feeny reads listener letters.
- 0730 Radio Austria Int'l: Report from Austria. See S 0130.
- 0745 BBC: Network UK. See T 0215.
- 1115 BBC: New Ideas. See T 0445.
- 1115 Radio Beijing: Current Affairs. See M 1115.
- 1115 Radio Korea: News Commentary. See S 0015.
- 1120 Radio Korea: Seoul Calling. See M 1120.
- 1125 BBC: Book Choice. See S 0745.
- 1130 BBC: Literature Is My Mistress, Medicine My Wife. A portrait of the Russian writer Anton Chekhov.
- 1130 Radio Austria Int'l: Report from Austria. See S 0130.
- 1140 Radio Beijing: Culture in China. The rich cultural heritage of China, as manifested in literature and art.
- 1140 Radio Korea: Let's Learn Korean! See M 1140.
- 1145 Radio Korea: Focus This Week. Analysis and interviews regarding Korean public affairs.
- 1215 BBC: Multitrack 2. See W 1830.
- 1215 Radio Beijing: Current Affairs. See M 1115.
- 1230 Radio Korea: News Commentary. See S 0015.
- 1235 Radio Korea: Seoul Calling. See M 1120.
- 1240 Radio Beijing: Culture in China. See H 1140.
- 1245 BBC: Sports Roundup. See S 1330.
- 1255 Radio Korea: Let's Learn Korean! See M 1140.
- 1300 Radio Korea: Focus This Week. See H 1145.
- 1309 BBC: Twenty-Four Hours. See S 0509.
- 1315 Radio Beijing: Current Affairs. See M 1115.
- 1330 BBC: Network UK. See T 0215.
- 1330 Radio Austria Int'l: Report from Austria. See S 0130.
- 1340 Radio Beijing: Culture in China. See H 1140.
- 1345 BBC: Folk in Britain or Jazz Scene UK. A look at folk or jazz music on the British Isles.
- 1405 BBC: Outlook. See M 1405.
- 1415 Radio Beijing: Current Affairs. See M 1115.
- 1415 Radio Korea: News Commentary. See S 0015.
- 1420 Radio Korea: Seoul Calling. See M 1120.
- 1430 BBC: Off the Shelf. See M 0430.

- 1430 Radio Austria Int'l: Report from Austria. See S 0130.
- 1440 Radio Beijing: Culture in China. See H 1140.
- 1440 Radio Korea: Let's Learn Korean! See M 1140.
- 1445 BBC: Write On.... See H 0730.
- 1445 Radio Korea: Focus This Week. See H 1145.
- 1515 BBC: Music for a While with Richard Baker. Classical music with the well-known broadcaster.
- 1515 Radio Beijing: Current Affairs. See M 1115.
- 1515 Radio Budapest: Calling DX'ers and Radio



Staff members at Radio for Peace International (from left): James Latham, Debra Latham, and Willie Brenes

- 1500 Radio Japan: News
- 1500 Radio Moscow (World Service): News
- 1500 Radio Romania Int'l: News
- 1500 Voice of America: News
- 1500 WHRI: News [M-A]
- 1500 WWCR: USA Radio News
- 1505 Radio Pyongyang: News
- 1510 Radio Beijing: News About China
- 1530 BRT, Brussels: News [M-F]
- 1530 Christian Science Monitor: News [M-F]
- 1530 Deutsche Welle: African News [M-F]
- 1530 Radio Moscow (World Service): News in Brief
- 1530 Radio Prague Int'l: News
- 1530 Radio Tirana, Albania: News
- 1530 Swiss Radio Int'l: News
- 1545 Radio Berlin Int'l: News
- 1600 BBC: World News
- 1600 Christian Science Monitor: News
- 1600 Deutsche Welle: World News
- 1600 Radio Australia: International Report
- 1600 Radio Beijing: News
- 1600 Radio France Int'l: News
- 1600 Radio Jordan: News Summary
- 1600 Radio Korea: News
- 1600 Radio Moscow (World Service): News
- 1600 Radio Polonia: News
- 1600 Radio Portugal: News [M-F]

- 1600 Radio Tanzania: News
- 1600 Voice of America: News
- 1600 WWCR: USA Radio News [M-F]
- 1609 BBC: News About Britain
- 1610 Radio Beijing: News About China
- 1610 Radio Botswana: News [M-F]
- 1615 Radio Canada Int'l: News
- 1630 Christian Science Monitor: News [M-F]
- 1630 Radio Austria Int'l: News
- 1630 Radio Moscow (World Service): News in Brief
- 1630 Radio Netherlands: News [M-A]
- 1630 Radio Peace and Progress: News
- 1630 Radio Polonia: News
- 1630 RAE, Buenos Aires: News
- 1630 UAE Radio, Dubai: News
- 1630 Voice of America (except Africa): News (Special English)
- 1655 KUSW: News [M-F]
- 1700 BBC: World News [S-F]; News Summary [A]
- 1700 Belize Radio One: News [M-F]
- 1700 Christian Science Monitor: News
- 1700 Kol Israel: News
- 1700 Radio Australia: World and Australian News
- 1700 Radio Beijing: News
- 1700 Radio Bras, Brasilia: News [M-A]
- 1700 Radio Japan: News
- 1700 Radio Jordan: Newsdesk [S-H]

- 1700 Radio Moscow (World Service): News
- 1700 Voice of America: News
- 1705 Radio Pyongyang: News
- 1710 Radio Beijing: News About China
- 1730 BRT, Brussels: News [M-F]
- 1730 Christian Science Monitor: News [M-F]
- 1730 Radio Moscow (World Service): News in Brief
- 1730 Radio Prague Int'l: News
- 1730 Radio Romania Int'l: News
- 1730 Swiss Radio Int'l: News
- 1745 Radio Berlin Int'l: News
- 1755 KUSW: News [M-A]
- 1800 BBC: Newsdesk
- 1800 Belize Radio One: Headline News [M-A]
- 1800 Christian Science Monitor: News
- 1800 KVOH: UPI News
- 1800 Radio Australia: International Report
- 1800 Radio Canada Int'l: News
- 1800 Radio Kiev: News
- 1800 Radio Korea: News
- 1800 Radio Moscow (World Service): News
- 1800 Radio New Zealand Int'l: News [M-F]
- 1800 Radio RSA: News
- 1800 Radio Tanzania: News
- 1800 Voice of America: News
- 1800 WWCR: USA Radio News [A]
- 1803 Radio Jamahiriya, Libya: News Headlines

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1645 Radio Korea: Focus This Week. See H 1145.
2300 Radio for Peace Int'l: Second Opinion. See M 0145.
2305 BBC: Commentary. See M 2305.
2310 BBC: Financial News. See M 2310.
2315 BBC: Music Review. Classical music events and developments from around the world.
2330 Radio for Peace Int'l: Earth Care. See S 0000.
2336 Radio Budapest: Commentary. See S 0036.
2341 Radio Budapest: Feature. See S 0041.

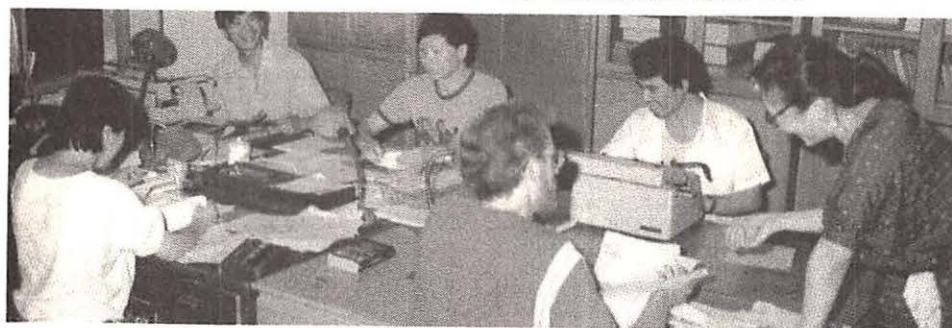
Friday

Aug 3rd, 10th, 17th, 24th, 31st

0015 Radio Beijing: Current Affairs. See M 1115.
0015 Radio Korea: News Commentary. See S 0015.
0020 Radio Korea: Seoul Calling. See M 1120.
0030 BBC: The Amadeus Legacy. The amazing Amadeus Quartet and their recordings.
0036 Radio Budapest: Commentary. See S 0036.
0040 Radio Beijing: Culture In China. See H 1140.
0040 Radio Korea: Let's Learn Korean! See M 1140.
0041 Radio Budapest: Feature. See S 0041.
0045 Radio Korea: Focus This Week. See H 1145.
0101 BBC: Outlook. See M 1405.
0125 BBC: Financial News. See M 2310.
0130 BBC: Folk In Britain or Jazz Scene UK. See H 1345.
0130 Radio Austria Int'l: Report from Austria. See S 0130.
0145 BBC: Global Concerns. Issues of an environmental nature.
0209 BBC: British Press Review. See S 0209.
0215 BBC: Seven Seas. A weekly program about ships and the sea.

0230 BBC: Literature Is My Mistress, Medicine My Wife. See H 1130.
0315 BBC: The World Today. See M 1645.
0315 Radio Beijing: Current Affairs. See M 1115.
0330 BBC: Focus on Faith. Comment and discussion on the major issues in the worlds of faith.
0340 Radio Beijing: Culture In China. See H 1140.
0415 Radio Beijing: Current Affairs. See M 1115.
0430 BBC: Off the Shelf. See M 0430.
0440 Radio Beijing: Culture In China. See H 1140.
0445 BBC: Folk In Britain or Jazz Scene UK. See H 1345.
0509 BBC: Twenty-Four Hours. See S 0509.
0515 Radio Beijing: Current Affairs. See M 1115.
0530 BBC: Financial News. See T 0125.
0530 Radio Austria Int'l: Report from Austria. See S 0130.
0540 BBC: Words of Faith. See S 0540.
0540 Radio Beijing: Culture In China. See H 1140.
0545 BBC: The World Today. See M 1645.
0630 BBC: Meridian. See W 0630.
0709 BBC: Twenty-Four Hours. See S 0509.
0730 BBC: To Right a Wrong. What happens when an individual takes on powerful professionals for a cause (except August 31st: Behave Yourself! Alenka Lawrence looks at manners worldwide).
0730 Radio Austria Int'l: Report from Austria. See S 0130.
1115 BBC: Global Concerns. See F 0145.
1115 Radio Beijing: Current Affairs or The Business Show. An in-depth look at events and happenings in China, or news on Chinese trade and industry.
1115 Radio Korea: News Commentary. See S 0015.
1120 Radio Korea: Let's Sing Together. A sing-along program, featuring the Song of the Month! Oh Boy!
1130 BBC: Meridian. See W 0630.

1130 Radio Austria Int'l: Report from Austria. See S 0130.
1140 Radio Beijing: In the Third World. Reports and music from developing nations.
1145 Radio Korea: Listeners' Forum. Listener opinions on various subjects.
1215 BBC: To Right a Wrong (except August 31st: Behave Yourself!). See F 0730.
1215 Radio Beijing: Current Affairs or The Business Show. See F 1115.
1230 Radio Korea: News Commentary. See S 0015.
1235 Radio Korea: Let's Sing Together. See F 1120.
1240 Radio Beijing: In the Third World. See F 1140.
1245 BBC: Sports Roundup. See S 1330.
1300 Radio Korea: Listeners' Forum. See F 1145.
1309 BBC: Twenty-Four Hours. See S 0509.
1315 Radio Beijing: Current Affairs or The Business Show. See F 1115.
1330 BBC: Short Story. See T 0130.
1330 Radio Austria Int'l: Report from Austria. See S 0130.
1340 Radio Beijing: In the Third World. See F 1140.
1345 BBC: Here's Humph! All that jazz with Humphrey Lyttelton.
1405 BBC: Outlook. See M 1405.
1415 Radio Beijing: Current Affairs or The Business Show. See F 1115.
1415 Radio Korea: News Commentary. See S 0015.
1420 Radio Korea: Let's Sing Together. See F 1120.
1430 BBC: Off the Shelf. See M 0430.
1430 Radio Austria Int'l: Report from Austria. See S 0130.
1440 Radio Beijing: In the Third World. See F 1140.
1445 BBC: Journey to the Center of the Earth. See M 0445.
1445 Radio Korea: Listeners' Forum. See F 1145.
1515 BBC: Music Review. See H 2315.
1515 Radio Beijing: Current Affairs or The Business Show. See F 1115.
1540 Radio Beijing: In the Third World. See F 1140.
1615 BBC: Science in Action. See M 0230.
1615 Radio Beijing: Current Affairs or The Business Show. See F 1115.
1615 Radio Korea: News Commentary. See S 0015.
1620 Radio Korea: Let's Sing Together. See F 1120.
1630 Radio Austria Int'l: Report from Austria. See S



A daily scene in the Radio Beijing newsroom

newline cont'd from p.61

1830 Belize Radio One: Network News
1830 Christian Science Monitor: News [M-F]
1830 Radio Budapest: News
1830 Radio Canada Int'l: News [M-F]
1830 Radio Finland: Northern Report [M-F]
1830 Radio Kuwait: News
1830 Radio Moscow (World Service): News in Brief
1830 Radio Netherlands: News [M-A]
1830 Radio Polonia: News
1830 Radio Tirana, Albania: News
1830 Radio Yugoslavia: News
1830 Swiss Radio Int'l: News
1830 Voice of America: News (Special English)
1847 Radio Jamahiriya, Libya: News
1852 Radio RSA: News in Brief
1855 KUSW: News [M-F]
1900 BBC: News Summary
1900 Christian Science Monitor: News [M-A]
1900 Deutsche Welle: World News
1900 HCJB: Latin American News
1900 Kol Israel: News
1900 KVOH: UPI News
1900 Radio Australia: World and Australian News
1900 Radio Beijing: News
1900 Radio Canada Int'l: News [M-F]

1900 Radio Havana Cuba: News [M-A]
1900 Radio Japan: News
1900 Radio Jordan: News Summary [S-H]
1900 Radio Moscow (World Service): News
1900 Radio New Zealand Int'l: News [S-F]
1900 Radio Portugal: News [M-F]
1900 Radio RSA: News
1900 Radio Tanzania: News
1900 Spanish National Radio: News
1900 Voice of America: News
1900 WWCR: USA Radio News [M-F]
1910 Radio Beijing: News About China
1910 Radio Botswana: News
1915 Radio Berlin Int'l: News
1930 Christian Science Monitor: News [M-F]
1930 Deutsche Welle: African News [M-F]
1930 Radio Austria Int'l: News
1930 Radio Havana Cuba: Newsbreak [M-A]
1930 Radio Moscow (World Service): News in Brief
1930 Radio Romania Int'l: News
1935 Radiotelevisione Italiana: News
1945 Radio Berlin Int'l: News
1955 HCJB: World News
1955 KUSW: News [M-A]
2000 BBC: World News
2000 Christian Science Monitor: News
2000 KVOH: UPI News

2000 Radio Australia: International Report
2000 Radio Beijing: News
2000 Radio Havana Cuba: News [M-A]
2000 Radio Jordan: News Summary [S-H]
2000 Radio Moscow (World Service): News
2000 Radio New Zealand Int'l: News [S-F]
2000 Radio Polonia: News
2000 Radio Portugal: News [M-F]
2000 Voice of America: News
2000 Voice of Indonesia: News
2000 Voice of Turkey: News
2005 Radio Pyongyang: News
2010 Radio Beijing: News About China
2025 Radio Havana Cuba: Cuban Nat'l News [M-A]
2025 Radiotelevisione Italiana: News
2030 Christian Science Monitor: News [M-F]
2030 Radio Budapest: News
2030 Radio Havana Cuba: Newsbreak [M-A]
2030 Radio Korea: News
2030 Radio Moscow (World Service): News in Brief
2030 Radio Netherlands: News [M-A]
2055 KUSW: News [M-A]
2055 Voice of Indonesia: News in Brief
2100 BBC: News Summary
2100 Belize Radio One: News [M-F]
2100 BRT, Brussels: News [M-F]
2100 Christian Science Monitor: News [M-A]

0130.
1640 Radio Beijing: In the Third World. See F 1140.
1645 BBC: The World Today. See M 1645.
1645 Radio Korea: Listeners' Forum. See F 1145.
2305 BBC: Commentary. See M 2305.
2310 BBC: Financial News. See M 2310.
2315 BBC: Worldbrief. A roundup of the week's news headlines and human-interest happenings.
2330 BBC: Multitrack 3. Sarah Ward surveys the British contemporary music scene.
2336 Radio Budapest: Commentary. See S 0036.
2341 Radio Budapest: 168 Hours. Repeats of the week's top news stories.

Saturday

August 4th, 11th, 18th, 25th

- 0015 Radio Beijing: Current Affairs or The Business Show. See F 1115.
0015 Radio Korea: News Commentary. See S 0015.
0020 Radio Korea: Let's Sing Together. See F 1120.
0030 BBC: From the Weeklies. A review of the weekly British press.
0036 Radio Budapest: Commentary. See S 0036.
0040 Radio Beijing: In the Third World. See F 1140.
0041 Radio Budapest: 168 Hours. See F 2341.
0045 BBC: Recording of the Week. See M 0545.
0045 Radio Korea: Listeners' Forum. See F 1145.
0101 BBC: Outlook. See M 1405.
0125 BBC: Financial News. See M 2310.
0130 BBC: Juste Plain Madness. Pop music, punctuated by bits of radio comedy.
0130 Radio Austria Int'l: Report from Austria. See S 0130.
0130 Radio Budapest: Calling DX'ers and Radio Amateurs. See S 0130.
0145 BBC: Book Choice. See S 0745.
0150 BBC: New Ideas. See T 0445.
0209 BBC: British Press Review. See S 0209.
0215 BBC: Network UK. See T 0215.
0230 BBC: Leaders and Leadership. Geoffrey Stern talks to prominent statesmen about being in power.
0315 BBC: The World Today. See M 1645.
0315 Radio Beijing: Current Affairs or The Business Show. See F 1115.
0330 BBC: The Vintage Chart Show. Paul Burnett presents top ten hits from the music charts of yesteryear.

- 0340 Radio Beijing: In the Third World. See F 1140.
0415 Radio Beijing: Current Affairs or The Business Show. See F 1115.
0430 BBC: Here's Humph! See F 1345.
0440 Radio Beijing: In the Third World. See F 1140.
0445 BBC: Worldbrief. See F 2315.
0509 BBC: Twenty-Four Hours. See S 0509.
0515 Radio Beijing: Current Affairs or The Business Show. See F 1115.
0530 BBC: Financial News. See M 2310.
0530 Radio Austria Int'l: Report from Austria. See S 0130.
0540 BBC: Words of Faith. See S 0540.
0540 Radio Beijing: In the Third World. See F 1140.
0545 BBC: The World Today. See M 1645.
0630 BBC: Meridian. See W 0630.
0709 BBC: Twenty-Four Hours. See S 0509.
0730 BBC: From the Weeklies. See F 2315.
0730 Radio Austria Int'l: Report from Austria. See S 0130.
0745 BBC: Network UK. See T 0215.
1115 BBC: Juste Plain Madness. See A 0130.
1115 Radio Beijing: Press Clippings. See S 0015.
1115 Radio Korea: News Commentary. See S 0015.
1120 Radio Beijing: Travel Talk. See S 0020.
1120 Radio Korea: Sites and Sounds. See S 0020.
1128 Radio Beijing: Cooking Show. See S 0028.
1130 BBC: Meridian. See W 0630.
1130 Radio Austria Int'l: Austrian Coffeetable. A look at the arts, especially music.
1135 Radio Beijing: Music from China. See S 0035.
1135 Radio Korea: From Us to You. See S 0035.
1215 BBC: Multitrack 3. See F 2330.
1215 Radio Beijing: Press Clippings. See S 0015.
1220 Radio Beijing: Travel Talk. See S 0020.
1228 Radio Beijing: Cooking Show. See S 0028.
1230 Radio Korea: News Commentary. See S 0015.
1235 Radio Beijing: Music from China. See S 0035.
1235 Radio Korea: Sites and Sounds. See S 0020.
1245 BBC: Sports Roundup. See S 1330.
1250 Radio Korea: From Us to You. See S 0035.
1309 BBC: Twenty-Four Hours. See S 0509.
1315 Radio Beijing: Press Clippings. See S 0015.
1320 Radio Beijing: Travel Talk. See S 0020.
1328 Radio Beijing: Cooking Show. See S 0028.
1330 BBC: Network UK. See T 0215.
1330 Radio Austria Int'l: Report from Austria. See S 0130.
1335 Radio Beijing: Music from China. See S 0035.
1345 BBC: Sportsworld. A weekly sports magazine (with breaks for news, through 1700 UTC).
1415 Radio Beijing: Press Clippings. See S 0015.
1415 Radio Korea: News Commentary. See S 0015.

SUGGESTIONS? SOMETHING MISSING?

Let us know your corrections, additions, and suggestions of what you'd like to see to Program Manager Kannon Shanmugam at 4412 Turnberry Circle, Lawrence, Kansas 66047.

Send us your special photos of station personnel (or good photocopies) to share with other readers as we have space. Please let us know if you would like them returned; we'll copy them and return your originals.

- 1420 Radio Beijing: Travel Talk. See S 0020.
1420 Radio Korea: Sites and Sounds. See S 0020.
1428 Radio Beijing: Cooking Show. See S 0028.
1430 Radio Austria Int'l: Austrian Coffeetable. See A 1130.
1435 Radio Beijing: Music from China. See S 0035.
1435 Radio Korea: From Us to You. See S 0035.
1515 Radio Beijing: Press Clippings. See S 0015.
1520 Radio Beijing: Travel Talk. See S 0020.
1528 Radio Beijing: Cooking Show. See S 0028.
1535 Radio Beijing: Music from China. See S 0035.
1615 Radio Beijing: Press Clippings. See S 0015.
1615 Radio Korea: News Commentary. See S 0015.
1620 Radio Beijing: Travel Talk. See S 0020.
1620 Radio Korea: Sites and Sounds. See S 0020.
1628 Radio Beijing: Cooking Show. See S 0028.
1630 Radio Austria Int'l: Report from Austria. See S 0130.
1635 Radio Beijing: Music from China. See S 0035.
1635 Radio Korea: From Us to You. See S 0035.
2305 BBC: Words of Faith. See S 0540.
2310 BBC: Book Choice. See S 0745.
2315 BBC: A Jolly Good Show. See T 1515.
2336 Radio Budapest: Commentary. See S 0036.
2341 Radio Budapest: Feature. See S 0041.

- 2100 Deutsche Welle: World News
2100 KVOH: UPI News
2100 Radio Australia: World and Australian News
2100 Radio Beijing: News
2100 Radio Canada Int'l: World at Six [M-F]; News [A-S]
2100 Radio Finland: Northern Report [M-F]
2100 Radio Japan: News
2100 Radio Jordan: News Summary [S-H]
2100 Radio Moscow (World Service): News
2100 Radio New Zealand Int'l: News [S-F]
2100 Radio Peace and Progress: News
2100 Radio Romania Int'l: News
2100 Radio Yugoslavia: News
2100 RAE, Buenos Aires: News
2100 Spanish National Radio: News
2100 Swiss Radio Int'l: News
2100 Voice of America: News
2110 Radio Beijing: News About China
2130 Christian Science Monitor: News [M-F]
2130 Kol Israel: News
2130 Radio Canada Int'l (Africa): News
2130 Radio Moscow (World Service): News in Brief
2130 Swiss Radio Int'l: News
2145 Radio Berlin Int'l: News
2155 KUSW: News [M-F]
2200 BBC: Newshour

- 2200 Christian Science Monitor: News
2200 Radio Australia: International Report
2200 Radio Beijing: News
2200 Radio Canada Int'l (Asia): News
2200 Radio Canada Int'l (USA): World at Six [M-F]; News [A-S]
2200 Radio Havana Cuba: News [M-A]
2200 Radio Moscow: News
2200 Radio New Zealand Int'l: News [M-F]
2200 Radiotelevisione Italiana: News
2200 Voice of America: News
2200 Voice of Free China: News and Commentary
2200 Voice of Turkey: News
2210 Radio Beijing: News About China
2215 Radio for Peace Int'l: UN Radio News [M-F]
2225 Radio Havana Cuba: Cuban Nat'l News [M-A]
2230 Christian Science Monitor: News [M-F]
2230 Radio Havana Cuba: Newsbreak [M-A]
2230 Radio Moscow (World Service): News in Brief
2230 Radio Polonia: News
2230 Radio Tirana, Albania: News
2230 Voice of America: News (Special English)
2233 Radio Jamahiriya, Libya: News Headlines
2255 KUSW: News [M-A]
2300 BBC: World News[A-S]; 5-Minute News[M-F]
2300 Belize Radio One: News [M-F]
2300 Christian Science Monitor: News [M-A]

- 2300 Kol Israel: News
2300 Radio Australia: World and Australian News
2300 Radio Canada Int'l (Caribbean): News
2300 Radio Finland: Northern Report [M-F]
2300 Radio Japan: News
2300 Radio Luxembourg: News
2300 Radio Moscow: News
2300 Radio New Zealand Int'l: News [F]
2300 Voice of America: News
2305 Radio Polonia: News
2305 Radio Pyongyang: News
2330 BRT, Brussels: News [M-F]
2330 Christian Science Monitor: News [M-F]
2330 Radio Budapest: News [M-A]
2330 Radio Canada Int'l (USA): News [A-S]
2330 Radio Jamahiriya, Libya: News
2330 Radio Kiev: News
2330 Radio Moscow (World Service): News in Brief
2330 Radio Tirana, Albania: News
2335 Voice of Greece: News [S]
2345 Radio Berlin Int'l: News
2355 KUSW: News [M-A]
2355 Radio Japan: News [M-F]
2355 WRNO: ABC News [F]

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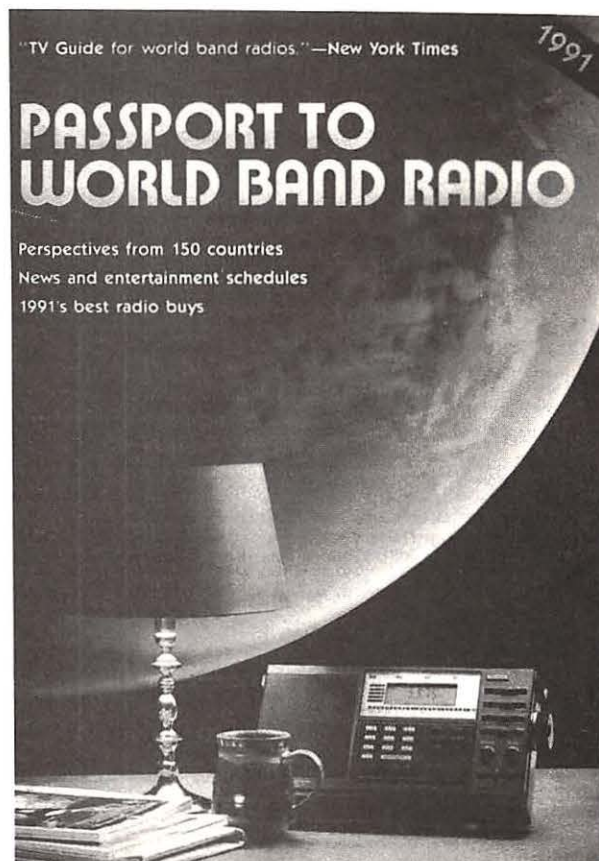
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Richard A. Keen
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Larry Miller
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frequency section

0000 UTC [8:00 PM EDT/5:00 PM PDT]

0000-0015	Radio Prague Int'l, Czechoslovakia	7345	11680	11990
0000-0025	Radio Finland, Helsinki	11755	15185	
0000-0030	M Radio Norway International, Oslo	15165		
0000-0030	Kol Israel, Jerusalem	15640	9435	11605
0000-0030	Radio Berlin International, GDR	9730	13610	13690 15240
0000-0030	Radio Korea, Seoul	15575		
0000-0030	Radio Australia, Melbourne	11880	13605	15240 15380
		15465	17630	17750 17795
0000-0030	Radio Canada International, Montreal	5960	9755	
0000-0045	Radio Yugoslavia, Belgrade	7215	11735	15105
0000-0050	Radio Pyongyang, North Korea	15115	15160	
0000-0100	SLBC Domestic Service, Sri Lanka	4940		
0000-0100	M-HR Radio New Zealand, Wellington	17675		
0000-0100	BBC World Service, London, England	5975	6005	6175 6195
		7325	9590	9915 11750
		12095	15260	
0000-0100	Adventist World Radio, Costa Rica	9725	11870	
0000-0100	Radio Moscow N.American Service	11690	11780	11800 12040
		12050	13605	15290 15315
		15530	15595	

0000-0100	Radio Moscow World Service	12055	15140	15170	15280
		15420	15425	15460	15480
		15550	15590	17570	17600
		17610	17620	17730	17775
		17850	17890	17935	21555
		21595	21655	21690	21790
		21825			
0000-0100	All India Radio, New Delhi	9535	9910		
		11715	11745	15110	
0000-0100	CBC Northern Quebec Service, Can	9625	(ML)		
0000-0100	CBN, St. John's, Nfld, Canada	6160			
0000-0100	CBU, Vancouver, British Columbia	6160			
0000-0100	CFCF, Montreal, Quebec, Canada	6005			
0000-0100	CFCN, Calgary, Alberta, Canada	6030			
0000-0100	CHNS, Halifax, Nova Scotia, Canada	6130			
0000-0100	Christian Science World Svc, Boston	9410	9850	13760	15435
0000-0100	CKWX, Vancouver, British Columbia	6080			
0000-0100	CFRB, Toronto, Ontario, Canada	6070			
0000-0100	FEBC Radio Int'l, Philippines	15480			
0000-0100	KSDA, Guam	15125			
0000-0100	KUSW, Salt Lake City, Utah	15590			
0000-0100	Radio Beijing, Beijing, China	17705	15100		
0000-0100	Radio Havana Cuba	11820			
0000-0100	Radio Luxembourg, Junglinster	6090			
0000-0100	Radio Tonga, Kingdom of Tonga	5030v			
0000-0100	Spanish National Radio, Madrid	9630	11880		
0000-0100	Voice of America-Americas Service	5995	9775	9815	11580
		15205			
0000-0100	Voice of America-Caribbean Service	6130	9455	11695	
0000-0100	Voice of America-East Asia Service	7120	9770	11760	15185
		15290	17735	17820	
0000-0100	Radio for Peace Int'l, Costa Rica	7375	(T-A add 13630)		
0000-0100	WHRI, Noblesville, Indiana	7315	9495		
0000-0100	WINB, Red Lion, Pennsylvania	15145			
0000-0100	WRNO Worldwide, Louisiana	7355			
0000-0100	WWCR, Nashville, Tennessee	7520			

the frequency file

August 1990

WHEW! Can you believe everything that has happened so far this year - and it's just now midsummer! Not exactly the best time of year to catch your breath and settle down to some serious DX'ing, you say? You heretic! Read on!

Sure, it's not the best time to try to hear Kiribati or King of Hope. Yet, if your primary interest is in SWL'ing, the pitfalls of summer pose no problems to you. The big boys- BBC, VOA, even REE - make it over here quite well.

The tendency on the bands this year has been reverence for the old adage "less is more." Stations have generally cut back on frequency usage while others - we won't name any names - went off the deep end and packed up the old kilowatt for good. That just makes it easier for the rest of 'em.

Reception conditions have been much better this year, not just because of the sunspots (PLEASE wear an SPF of at least 15) but also because it seems stations are making a genuine effort not to get on top of each other. This bizarre union has in the past resulted in lots of heterodyne babies, nasty creatures whose howls are extremely irritating.

Of Neon Shorts and French Radiation in Tennessee

Andre Agassi may have lost the big one, but the question remains, do neon shorts really help? If Radio France International staffers wore neon shorts and came to the MT Convention, would they win our hearts? I doubt it very seriously. If they really wanted to get over their tennis envy and send us a real serve, they'd give us some better frequencies. Unless you're an early bird, you can't hear them very well. Or CAN you? Look in the frequency listings and see

where you can find them.

In fact, you'll be amazed at what you can find just browsing through this section. You'll probably find some transmissions from your favorite broadcasters that you weren't aware of. If you do this, you'll probably find yourself in a state of mind so high you'll feel like you've moved to DX heaven.

Tuning Tips

Many times you'll dial up a frequency listed here only to find that the station isn't there. In some cases, you might look around just up or down the band, as stations very often make what are known as "minor" adjustments. Some examples: New Zealand from 17680 to 17675; Radio for Peace Int'l from 13660 to 13630; KUSW from 15580 to 15590 (or vice-versa). Also, with the improved band conditions we've had the past several years, you might try those higher frequencies listed.

One more thing -- bear in mind that our list tries to be all-inclusive. Just because Tonga's out there doesn't mean you're going to hear it, just as the fact that there is a jackpot number out there in your mailbox doesn't mean you're going to be rich (although, if you do win, please contact me...).

Reach Out and Touch

You can now reach me via both GENIE and Compuserve. Vent your anger, send me your tips and compliments, or whatever. The GENIE Mail address is GJORDAN8, while at Compuserve it's 72260,317. Hope to hear from you!

-- Greg Jordan, Frequency Manager

frequency

section

0000-0100	WYFR, Okeechobee, Florida	5985	13695	15170
0030-0035	Radio Prague, Czechoslovakia	6055	13715	
0030-0100 S,M	Radio Canada Int'l, Montreal	5960	9755	
0030-0100	Radio Australia, Melbourne	11880	13605	15160 15240
		15380	15465	15560 17630
		17750	17795	21740
0030-0100	Radio Budapest, Hungary	6110	9520	9585 9835
		11910	15160	
0030-0100	Radio Netherlands Int'l, Hilversum	6020	6165	15560
0035-0100	HCJB, Quito, Ecuador	15155	17875	
0050-0100	Vatican Radio, Vatican City	6150	9605	11780

0100 UTC [9:00 PM EDT/6:00 PM PDT]

0100-0105	Vatican Radio, Vatican City	6150	9605	11780
0100-0115	All India Radio, New Delhi	9535	9910	
		11715	11745	15110
0100-0125	RAI, Rome, Italy	9575	11800	
0100-0125	Radio Netherlands Int'l, Hilversum	6020	6165	15560
0100-0130	Radio Japan Americas Svc, Tokyo	17755		
0100-0130	Radio Prague Int'l, Czechoslovakia	5930	7345	11680
0100-0130	CBC Northern Quebec Service, Can	9625	(ML)	
0100-0130	Lao National Radio, Vientiane	7116v		
0100-0130	Radio Sweden, Stockholm	15405		
0100-0130	Kol Israel, Jerusalem	9435	15640	11605
0100-0130 H,A	Radio Budapest, Hungary	6110	9520	9585 9835
		11910	15160	
0100-0150	Deutsche Welle, Köln, West Germany	6040	6145	9565
		15105	11865	
0100-0200	Radio Moscow North American Svc	11690	11780	11800 12040
		12050	13605	15290 15315
		15530	15595	
0100-0200	Radio Moscow World Service	12055	15140	15170 15280
		15420	15425	15460 15480
		15550	15590	17570 17600
		17610	17620	17730 17775
		17850	17890	17935 21555
		21595	21655	21690 21790
		21825		
0100-0200	BBC World Service, London, England	5975	6005	6175 7325
		9590	9915	11750 12095
		15260	21715	
0100-0200 S,M	Radio Canada Int'l, Montreal	13720	11940	11845 9755
		9535		
0100-0200 A-H	Radio New Zealand, Wellington	17675		
0100-0200	SLBC Domestic Service, Sri Lanka	4940		

LEGEND

- * The first four digits of an entry are the broadcast start time in UTC. The second four digits represent the end time.
- * In the space between the end time and the station name is the broadcast schedule.

S=Sunday M=Monday T=Tuesday W=Wednesday
H=Thursday F=Friday A=Saturday

If there is no entry, the broadcasts are heard daily. If, for example, there is an entry of "M," the broadcast would be heard only on Mondays. An entry of "M,W,F" would mean Mondays, Wednesdays and Fridays only. "M-F" would mean Mondays through Fridays. "TEN" indicates a tentative schedule and "TES" a test transmission.

The last entry on a line is the frequency. Several codes may be found after a frequency as follows:

- * SSB indicates Single Sideband transmission.
- * v after a frequency indicates that it varies
- * Notations of USB and LSB (upper and lower sideband transmissions) usually refer only to the individual frequency after which they appear.
- * [ML] after a frequency indicates a multi-lingual transmission containing English-language programs. All other frequencies may be assumed to be English language programs directed to various parts of the world.
- * Listings followed by an asterisk (*) are for English lessons and do not contain regularly scheduled programming.

We suggest that you begin with the lower frequencies that a station is broadcasting on and work your way up the dial. Remember that there is no guarantee that a station will be audible on any given day. Reception conditions can change rapidly, though, and if it is not audible one night, it may well be on another.

0100-0200	CBN, St John's, Newfoundland	6160		
0100-0200	CBU, Vancouver, British Columbia	6160		
0100-0200	CFCF, Montreal, Quebec, Canada	6005		
0100-0200	CFCN, Calgary, Alberta, Canada	6030		
0100-0200	CHNS, Halifax, Nova Scotia, Canada	6130		
0100-0200	Christian Science World Svc, Boston	15435	9850	13760 9410
0100-0200	CKWX, Vancouver, British Columbia	6080		
0100-0200	CFRB, Toronto, Ontario, Canada	6070		
0100-0200	FEBC Radio Int'l, Philippines	15480		
0100-0200	HCJB, Quito, Ecuador	17875	15155	
0100-0200	KUSW, Salt Lake City, Utah	15590		
0100-0200	Radio Australia, Melbourne	11880	15160	15240 15465
		15560	17630	17750 17795
		21525	21740	21775

0100-0200	Radio Havana Cuba	11820		
0100-0200	Radio Japan General Svc, Tokyo	5960	17810	17835 17845
0100-0200	Radio Luxembourg, Junglinster	6090		
0100-0200	Radio for Peace Int'l, Costa Rica	7375	(T-A add 13630)	
0100-0200	Radio Tonga, Kingdom of Tonga	5030v		
0100-0200	Spanish National Radio, Madrid	9630	11880	
0100-0200	Voice of America-Americas Service	5995	9775	9815 11580
		15205		
0100-0200	Voice of America-Caribbean Service	6130	9455	
0100-0200	Voice of America-East Asia Service	7115	7205	9740 11705
		15205	21525	
0100-0200	Voice of Indonesia, Jakarta	11755	11788	
0100-0200	WHRI, Noblesville, Indiana	7315	9495	
0100-0200	WINB, Red Lion, Pennsylvania	15145		
0100-0200	WRNO Worldwide, Louisiana	7355		
0100-0200	WWCR, Nashville, Tennessee	7520		
0100-0200	WYFR, Okeechobee, Florida	5985	9505	11720 17612
0130-0200 M-A	Voice of Greece, Athens	11645	9395	9420
0130-0200	Radio Baghdad, Iraq	11830		
0130-0200	Radio Austria International, Vienna	9870	9875	13730
0145-0200	Radio Berlin International, GDR	6080	11890	13610 13760
		15240		
0155-0200	Vatican Radio, Vatican City	15105	9645	11750

0200 UTC [10:00 PM EDT/7:00 PM PDT]

0200-0215	Vatican Radio, Vatican City	15105	9645	11750
0200-0220	Radio Veritas-Asia, Philippines	15220	15360	
0200-0230	SLBC Domestic Service, Sri Lanka	4940		
0200-0230	FEBC Radio Int'l, Philippines	15480		

HOW TO USE THE PROPAGATION CHARTS

Propagation charts can be an invaluable aid to the DXer in determining which frequencies are likely to be open at a given time. To use the propagation charts, choose those for your location (they are divided into east coast, midwest and west coast of North America). Then look for the one most closely describing the geographic location of the station you want to hear.

Once you've located the correct charts, look along the horizontal axis of the graph for the time that you are listening. The top line of the graph shows the Maximum Useable Frequency [MUF] and the lower line the Lowest Useable Frequency [LUF] as indicated on the vertical axis of the graph.

While there are exceptions to every rule (especially those regarding shortwave listening), you should find the charts helpful in determining the best times to listen for particular regions of the world. Good luck!

0200-0230	T-A Voice of America	5995	9775	9815	11580
		15205			
0200-0230	Swiss Radio International, Berne	6095	6135	9650	9885
		12035	17730		
0200-0230	Radio Berlin International, GDR	6080	11890	13610	13760
		15240			
0200-0250	Deutsche Welle, Köln, W. Germany	7285	9615	9690	11835
		11945	15235	17770	
0200-0250	Radio Bras, Brasilia, Brasil	11745			
0200-0300	BBC World Service, London, England	5975	6005	6110	6175
		7135	7325	9410	9590
		9915	11750	12095	15260
		15390	21715		
0200-0300	RAE, Buenos Aires, Argentina	11710			
	(Subject to covering by co-channel Moscow)				
0200-0300	KSDA, Guam	13720			
0200-0300	Radio Moscow North American Svc	11690	11710	11780	11800
		11850	11980	12040	12050
		13605	15290	15315	15425
		15435	15530	15580	15595
0200-0300	Radio Moscow World Service	11600	11630	15140	15170
		15230	15280	15415	15480
		15550	15590	17560	17570
		17600	17620	17730	17850
		17860	17890	17960	21555
		21585	21625	21655	21690
		21790	21825		
0200-0300	CBC Northern Quebec Service, Can	9625	(ML)		
0200-0300	CBN, St. John's, Newfoundland, Can	6160			
0200-0300	CBU, Vancouver, British Columbia	6160			
0200-0300	CFCF, Montreal, Quebec, Canada	6005			
0200-0300	CFCN, Calgary, Alberta, Canada	6030			
0200-0300	CHNS, Halifax, Nova Scotia, Canada	6130			
0200-0300	Christian Science World Svc, Boston	9455	9850	13760	
0200-0300	CKWX, Vancouver, British Columbia	6080			
0200-0300	CFRB, Toronto, Ontario, Canada	6070			
0200-0300	HCJB, Quito, Ecuador	15155	17875		
0200-0300	KUSW, Salt Lake City, Utah	15590			
0200-0300	Radio Australia, Melbourne	11880	15160	15240	15320
		15465	15560	17630	17750
		17795	21525	21740	21775
0200-0300	Radio Baghdad, Iraq	11830			
0200-0300	T-A Radio For Peace Int'l, Costa Rica	7375	USB (T-A add 13630)		
0200-0300	T-A Radio Canada International, Montreal	9535	9755	11845	11940
		13720			
0200-0300	Radio Romania Int'l, Bucharest	5990	6155	9510	9570
		11830	11940	15380	
0200-0300	Radio Cairo, Egypt	9475	9675		



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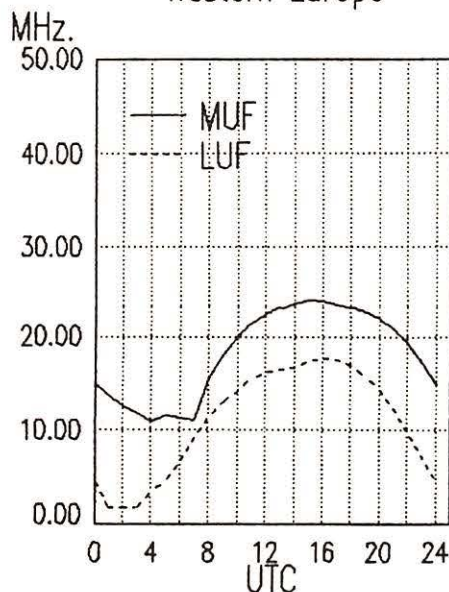
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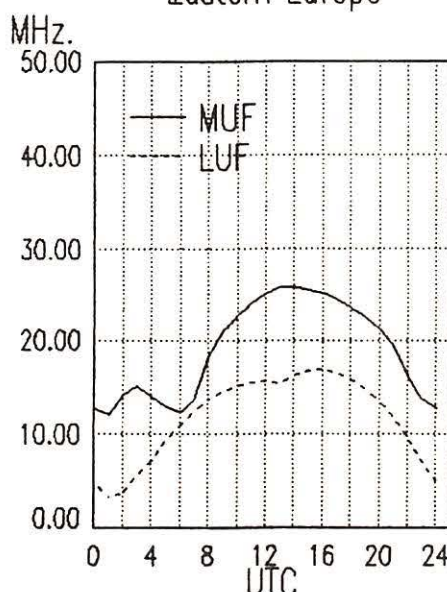
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0200-0300	Radio Havana Cuba	9710	11820
0200-0300	Radio Luxembourg, Junglinster	6090	
0200-0300	Radio Tonga, Kingdom of Tonga	5030v	
0200-0300	Voice of America-South Asia Service	7115	7205 9740 11705
		15160	15250 21525
0200-0300	Radio Cultura, Guatemala	3300	
0200-0300	A,S Radio New Zealand, Wellington	17675	
0200-0300	Voice of Free China, Taiwan	5950	7445 9680
0200-0300	WHRI, Noblesville, Indiana	7315	9495

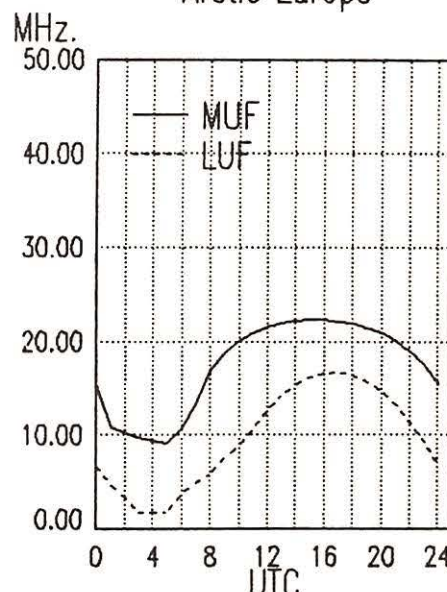
East Coast To
Western Europe



East Coast To
Eastern Europe



East Coast To
Arctic Europe



MONITORING TIMES

August 1990

East Coast

frequency section

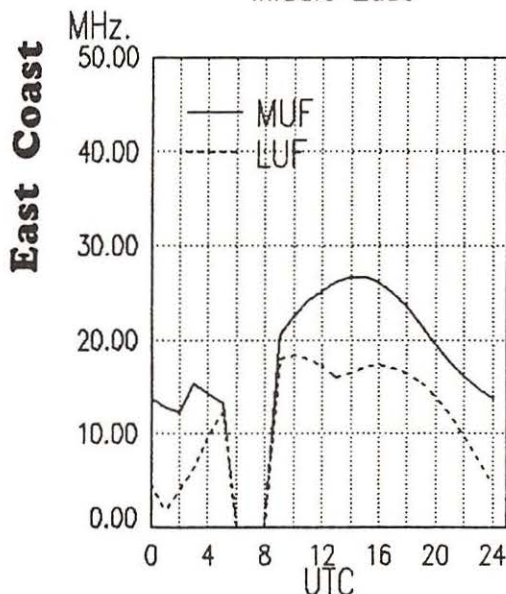
0200-0300	WRNO Worldwide, Louisiana	7355		
0200-0300	WWCR, Nashville, Tennessee	7520		
0200-0300	WINB, Red Lion, Pennsylvania	15145		
0200-0300	WYFR, Okeechobee, Florida	6065	9505	
0215-0225	Radio Nepal, Katmandu	5005	7165 (alt. 3230)	
0230-0245	Radio Pakistan (Slow speed news)	9545	15115	17660 17725
		21490		
0230-0300	T-A Radio Portugal, Lisbon	9600	9680	9705 11840
0230-0300	Radio Sweden, Stockholm	9695	11705	
0230-0300	Radio Tirana, Albania	9500	11825	
0249-0257V	Radio Yerevan, Armenia	11675	11790	15180 15455
		15485		

0300 UTC [11:00 PM EDT/8:00 PM PDT]

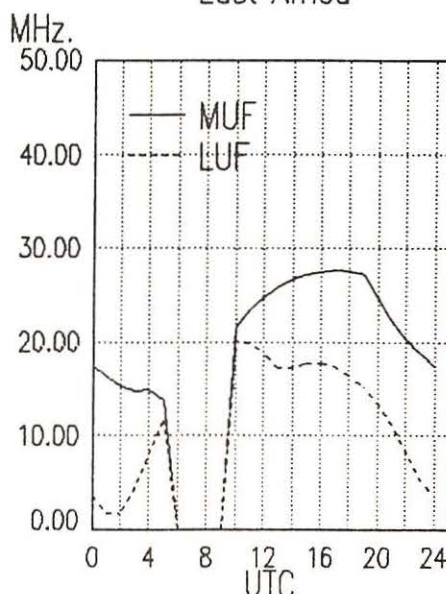
0300-0315	Azad Kashmir Radio, Pakistan	7286	4980	3665
0300-0330	Radio Australia, Melbourne	11880	15160	15240 15320
		15465	15560	17630 17750
		17795	21525	21740 21775
		9475	9675	
0300-0330	Radio Cairo, Egypt	17835	17810	17765 9645
0300-0330	Radio Japan General Service, Tokyo	5930	7345	11680
0300-0330	Radio Prague Int'l, Czechoslovakia	15195	17825	15325 21610
0300-0345	Radio Japan Americas Svc, Tokyo	6080	9730	
0300-0350	Radio Berlin International, GDR	11830		
0300-0350	Radio Baghdad, Iraq	6085	6120	9545 15205
	Deutsche Welle, Köln, West Germany	11810		
0300-0355	Radio Beijing, China	9690	11715	15100
0300-0400 A.S	Radio New Zealand	17675		
0300-0400	BBC World Service, London, England	5975	6005	6175 6195
		7135	7325	9410 9600
		9915	11750	12095 15220
		15260	15420	17705 21715
0300-0400	CBC, Northern Quebec Service, Can	9625 (ML)		
0300-0400	Radio Moscow North American Svc	9635	12050	13605 15180
		15425	15455	15530 15580
		15595		
0300-0400	Radio Moscow World Service	7305	11615	11630 11675
		11775	11960	11980
		11995	12040	15140 15170
		15230	15280	15315 15320
		15415	15480	15540 15550
		17560	17570	17600 17620
		17730	17850	17860 17890
		17995	21555	21585 21625
		21655	21690	21740 21790
		21825	21880	25780

0300-0400	Radio Sofia, Bulgaria	11720	11735	17825 17835
0300-0400	Voice of Turkey, Ankara	9445	17880	
0300-0400	CBN, St. John's, Newfoundland, Can	6160		
0300-0400	CBU, Vancouver, British Columbia	6160		
0300-0400	CFCF, Montreal, Quebec, Canada	6005		
0300-0400	CFCN, Calgary, Alberta, Canada	6030		
0300-0400	CHNS, Halifax, Nova Scotia, Canada	6130		
0300-0400	Christian Science World Svc, Boston	9455	9850	13760
0300-0400	CKWX, Vancouver, British Columbia	6080		
0300-0400	CFRB, Toronto, Ontario, Canada	6070		
0300-0400	Faro del Caribe, San Jose, Costa Rica	5055		
0300-0400	HCJB, Quito, Ecuador	17875	15155	
0300-0400	Radio Cultural, Guatemala	3300		
0300-0400	Radio Havana Cuba	9710	11820	
0300-0400	Radio Oranje, South Africa	3215		
0300-0400	Trans World Radio, Bonaire	9535	11930	
0300-0400	Voice of America-Africa Service	6035	7170	7280 9525
		9575	11835	
0300-0400	Voice of Free China, Taiwan	5950	7445	9680 9765
		11745	15345	
0300-0400	WHRI, Noblesville, Indiana	7315	9495	
0300-0400	WRNO Worldwide, Louisiana	6185		
0300-0400	WWCR, Nashville, Tennessee	7520		
0300-0400	WYFR, Okeechobee, Florida	6065	9505	15440
0310-0325	Vatican Radio, Vatican City	11725		
0310-0327	Red Cross Bcsting, Switzerland	6135	9725	9885 12035
	Tuesday and Friday after last Sunday of the month.			
0315-0330	Radio for Peace Int'l, Costa Rica	7375	USB	
0315-0345	Radio France International, Paris	3965	5990	7135 7280
		9745	9790	9800 11705
		11790	11995	15135 15155
		15300		
0330-0340	All India Radio, New Delhi	3905	4860	9610 11830
		11870	11890	15305
0330-0400	Radio Netherlands Int'l, Hilversum	9590	6165	
0330-0400	Radio Tirana, Albania	9500	11825	
0330-0400	Radio Australia, Melbourne	11880	15160	15240 15320
		15465	15560	17795 21525
		21740	21775	
0330-0400	United Arab Emirates Radio, Dubai	11940	13675	15400 15435
0330-0400	Radio Japan General Service, Tokyo	17835	17810	17765
0340-0350	M-A Voice of Greece, Athens	11645	9395	9420
0345-0400	Radio Berlin Int'l, GDR	11785	11890	13760 15125
0350-0400	RAI, Rome, Italy	11905	15330	17795
		17690	17665	

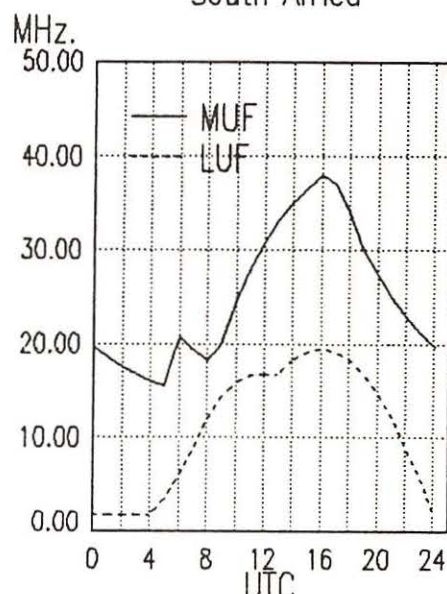
East Coast To
Middle East



East Coast To
East Africa



East Coast To
South Africa



frequency

section

0400 UTC [12:00 AM EDT/9:00 PM PDT]

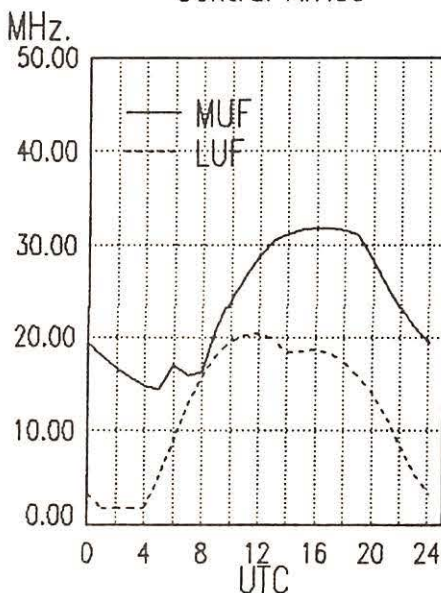
0400-0410	M-F Radio Zambia, Lusaka	4910			
0400-0410	RAI, Rome, Italy	11905	15330	17795	
0400-0415	Radio Prague Int'l, Czechoslovakia	5930	7345	11680	
0400-0415	Kol Israel, Jerusalem	9435	11605	11655	12077
		15640	17575		
0400-0425	Radio Cultural, Guatemala	3300			
0400-0425	Radio Netherlands Int'l, Hilversum	9590	6165		
0400-0430	Radio Berlin Int'l, GDR	11785	11890	13760	15125
0400-0430	Radio Romania Int'l, Bucharest	5990	6155	9510	9570
		11830	11940	15380	
0400-0430	A.S. Radio New Zealand, Wellington	17675			
0400-0430	Radio Australia, Melbourne	11880	15160	15240	15320
		15465	15560	17795	21525
		21740	21775		
0400-0430	Swiss Radio International, Berne	6135	9650	9885	12035
0400-0430	Trans World Radio, Bonaire	11930	9535		
0400-0450	Deutsche Welle, Koln, West Germany	7225	7150	9765	9565
		11765	15265		
0400-0450	Radio Pyongyang, North Korea	13650	15180	17765	
0400-0455	Radio Beijing, China	11685	11840		
0400-0500	Voice of America-Africa Service	6025	6035	7280	9525
		9575	11785	11835	
0400-0500	Radio Moscow North American Svc	9635	11895	12050	13605
		15180	15425	15455	15530
		15595(+17605 from 0430)			
0400-0500	BBC World Service, London, England	5975	6005	6195	7105
		7120	9410	9580	9600
		9610	9670	9915	12095
		15070	15245	17885	21470
		21715			
0400-0500	Radio Moscow World Service	11615	11630	11775	11780
		11980	11995	12010	12040
		15140	15230	15280	15315
		15415	15520	15540	15550
		15590	17560	17570	17600
		17620	17625	17715	17730
		17850	17860	17890	21555
		21585	21625	21690	21740
		21790	21825	25780	
0400-0500	CBC, Northern Quebec Service	9625 (ML)			
0400-0500	Radio for Peace Int'l, Costa Rica	7375	USB		
0400-0500	CBN, St. John's, Newfoundland, Can	6160			
0400-0500	CBU, Vancouver, British Columbia	6160			
0400-0500	CFCF, Montreal, Quebec, Canada	6005			
0400-0500	CFCN, Calgary, Alberta, Canada	6030			
0400-0500	CHNS, Halifax, Nova Scotia, Canada	6130			

0400-0500	Christian Science World Svc, Boston	9455	9840	13760	17780
0400-0500	CKWX, Vancouver, British Columbia	6080			
0400-0500	CFRB, Toronto, Ontario, Canada	6070			
0400-0500	HCJB, Quito, Ecuador	17875	15155		
0400-0500	KSDA, Guam	15225			
0400-0500	Radio Havana Cuba	9710	9750	11760	11820
0400-0500	Radio Oranje, South Africa	3215			
0400-0500	S-F WMLK Bethel, Pennsylvania	9465			
0400-0500	Radio Tonga, Kingdom of Tonga	5030v			
0400-0500	Voice of America-Middle East Service	3980	5995	6040	6140
		7170	7200	11785	15205
0400-0500	Radio Canada International	15275			
0400-0500	WHRI, Noblesville, Indiana	7315	9495		
0400-0500	WRNO Worldwide, Louisiana	6185			
0400-0500	WWCR, Nashville, Tennessee	7520			
0400-0500	WYFR, Okeechobee, Florida	6065	9505		
0425-0440	RAI, Rome, Italy	5990	7275		
0430-0500	A-H Radio New Zealand, Wellington	17675			
0430-0500	M-F NBC Windhoek, Namibia	3270	3290		
0430-0500	Radio Australia, Melbourne	11880	15160	15240	15320
		15465	15560	17630	17750
		17795	21525	21740	21775
0430-0500	Radio Tirana, Albania	9500	11835		
0455-0500	Voice of Nigeria, Lagos	7255			

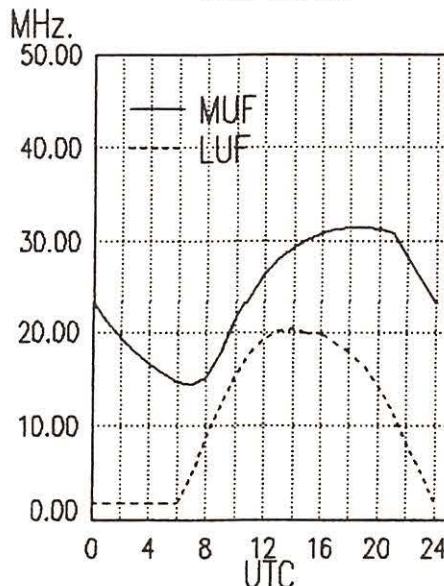
0500 UTC [1:00 AM EDT/10:00 PM PDT]

0500-0505	Radio Oranje, South Africa	3215			
0500-0515	M-F Radio Canada International, Montreal	6050	6150	7295	9750
		11775	17840		
0500-0515	Azad Kashmir Radio, Pakistan	7268	4980	3665	
0500-0520	Vatican Radio	6185	9645		
0500-0530	Vatican Radio African Service	17710	17730	21650	
0500-0530	M-F NBC Windhoek, Namibia	3270	3290		
0500-0550	Deutsche Welle, Koln, West Germany	5960	6120	9670	11705
		11845			
0500-0555	Radio Beijing, China	11840			
0500-0600	Radio Kuwait	15345			
0500-0600	BBC World Service, London, England	5975	6005	6195	7120
		9410	9600	9640	9915
		12095	15070	17740	17885
		21470	21715		
0500-0600	CBU, Vancouver, British Columbia	6160			
0500-0600	Radio Jordan, Amman	13655			
0500-0600	CFCF, Montreal, Quebec, Canada	6005			
0500-0600	CFCN, Calgary, Alberta, Canada	6030			
0500-0600	CHNS, Halifax, Nova Scotia, Canada	6130			

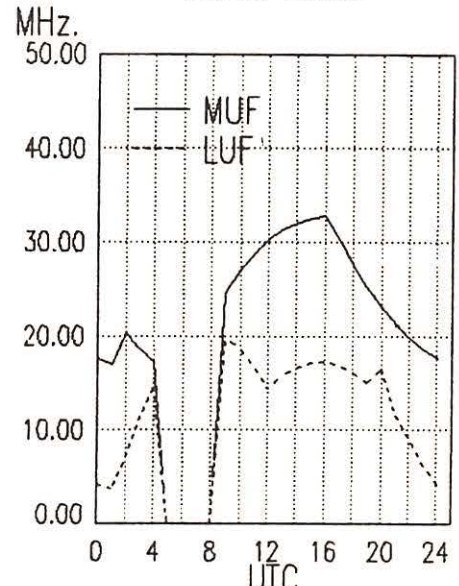
East Coast To
Central Africa



East Coast To
West Africa



East Coast To
Indian Ocean



East Coast

frequency

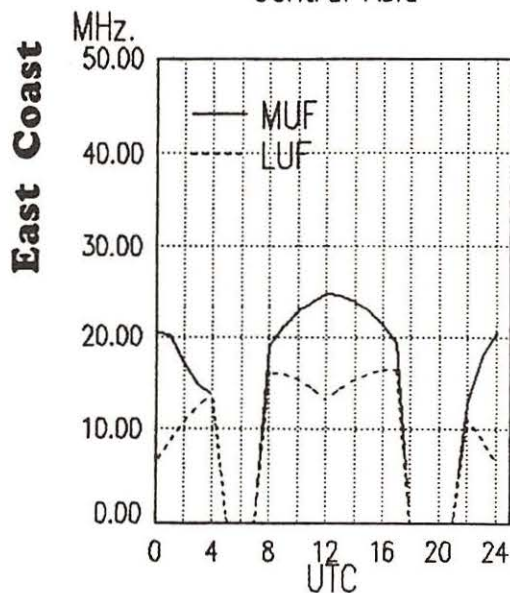
section

0500-0600	S-F WMLK Bethel, Pennsylvania	9465			
0500-0600	Christian Science World Svc, Boston	9455	9840	13760	17780
0500-0600	Radio Moscow North American Svc	9635	11895	12050	13605
		15180	15425	15455	15530
		15595	17605		
0500-0600	Radio Moscow World Service	11615	11630	11710	11980
		11995	12070	15060	15140
		15155	15230	15280	15305
		15405	15415	15430	15540
		15550	15590	17560	17570
		17600	17620	17625	17635
		17710	17730	17765	17850
		17860	17890	17995	
		21555	21585	21625	21630
		21645	21690	21740	21790
		21825	21880	25780	
0500-0600	A-H Radio New Zealand, Wellington	17675			
0500-0600	CKWX, Vancouver, British Columbia	6080			
0500-0600	CFRB, Toronto, Ontario, Canada	6070			
0500-0600	HCJB, Quito, Ecuador	15155	17875		
0500-0600	Radio Australia, Melbourne	11880	15160	15240	15320
		15465	15560	17630	17750
		17795	21525	21740	21775
0500-0600	Radio Havana Cuba	9710	11760	11820	9750
0500-0600	Radio Japan General Service, Tokyo	17765	17810	17825	17890
		15195			
0500-0600	Radio for Peace Int'l, Costa Rica	7375	USB		
0500-0600	Radio Tonga, Kingdom of Tonga	5030v			
0500-0600	Spanish National Radio, Madrid	9630			
0500-0600	Voice of America-Africa Service	3990	6035	7280	9540
		9575			
0500-0600	Voice of America-Middle East Service	3980	5995	6140	7170
		7200	11785	15205	
		7255			
0500-0600	Voice of Nigeria, Lagos	7315	9495		
0500-0600	WHRI, Noblesville, Indiana	7520			
0500-0600	WWCR, Nashville, Tennessee	5985	11580	17640	15566
0500-0600	WYFR, Okeechobee, Florida	7285			
0510-0600	Radio Oranje, South Africa	6015			
0530-0600	Radio Austria International, Vienna	15340	15380	17720	17745
0530-0600	Radio Romania Int'l, Bucharest	17790	21665		
0530-0600	M-F NBC Windhoek, Namibia	3270			
0530-0600	UAE Radio Dubal	15435	17830	21700	
0545-0600	Radio Berlin Int'l, GDR > Three	9760	13610	13690	15445
0545-0600	Radio Berlin Int'l, GDR > different	11970	21450		
0545-0600	Radio Berlin Int'l, GDR > programs!	5965	6115	7185	
0555-0600	Voice of Malaysia, Kuala Lumpur	6175	9750	15295	

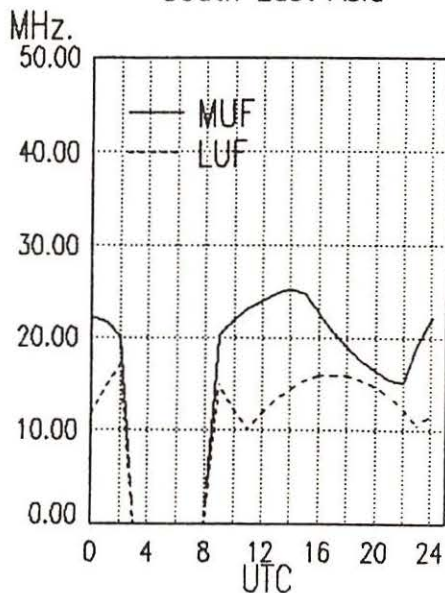
0600 UTC [2:00 AM EDT/11:00 PM PDT]

0610-0615	Sierra Leone Brdctng.Svc.,Freetown	3316			
0600-0630	Radio Berlin Int'l, GDR > Three	9760	13610	13690	15445
0600-0630	Radio Berlin Int'l, GDR > different	11970	21450		
0600-0630	Radio Berlin Int'l, GDR > programs!	5965	6115	7185	
0600-0630	Laotian National Radio	7116v			
0600-0630	S Radio Norway International, Oslo	15165			
0600-0645v	Radio For Peace, Int'l, Costa Rica	7375	USB		
0600-0650	Deutsche Welle, Köln, W. Germany	11765	13790	15185	17875
0600-0650	CBU, Vancouver, British Columbia	6160			
0600-0700	Radio Pyongyang, North Korea	15180	13650		
0600-0700	Radio Australia, Melbourne	11880	13700	13705	15240
		15465	17630	21525	21740
		21775			
0600-0700	BBC World Service, London, England	5975	6180	6195	7120
		7150	9410	9580	9600
		9640	12095	15070	15245
		15280	15400	15420	17640
		17710	17790	17885	21470
		21715			
0600-0700	M-F NBC Windhoek, Namibia	7165	7190		
0600-0700	CFCF, Montreal, Quebec, Canada	6005			
0600-0700	SIBC Solomon Islands	9545	5020		
0600-0700	A-H Radio New Zealand, Wellington	17675			
0600-0700	WYFR, Okeechobee, Florida	5985	6065	7355	13760
		15566	17640		
0600-0700	ABC Domestic Network, Australia	15425			
0600-0700	S-F WMLK Bethel, Pennsylvania	9465			
0600-0700	CFCN, Calgary, Alberta, Canada	6030			
0600-0700	CHNS, Halifax, Nova Scotia, Canada	6130			
0600-0700	Christian Science World Svc, Boston	9455	9840	11980	17780
		17855			
0600-0700	CKWX, Vancouver, British Columbia	6080			
0600-0700	CFRB, Toronto, Ontario, Canada	6070			
0600-0700	Radio Moscow North American Svc.	9635	12050	13605	15180
		15425	15530	15595	17605
		11710	11775	11980	11995
		12010	12030	15140	15155
		15170	15305	15320	15375*
		15405	15415	15520	15540
		15550	15585	15590	17560
		17570	17600	17620	17630
		17635	17710	17730	17775
		17765	17850	17860	17890
		21545	21585	21625	21630
		21645	21655	21690	21725

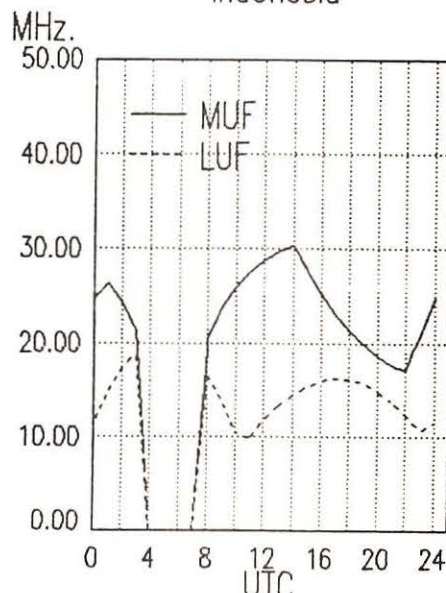
East Coast To
Central Asia



East Coast To
South East Asia



East Coast To
Indonesia



frequency

section

* Note: Transmission on 15375kHz begins now and continues through 1859 UTC.

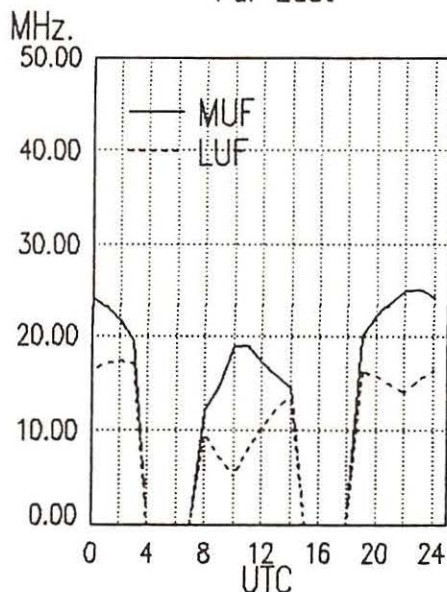
0600-0700	Voice of the Mediterranean, Malta	9765	21740	21755	21790	21825
0600-0700	HCJB, Quito, Ecuador	15155	17875			
0600-0700	Radio Jordan, Amman	13655				
0600-0700	ABC Brisbane, Australia	9660				
0600-0700	Radio Tonga, Kingdom of Tonga	5030v				
0600-0700	Voice of America-Africa Service	3990	6035	6080	6125	
		7280	9530	9540	9575	
		11915				
0600-0700	Voice of America-Middle East Serv	3980	5965	5995	6060	
		6095	6140	7170	7200	
		7325	9715	11785	11805	
		11925	15195	15205	17715	
0600-0700	Radio Havana Cuba	9750				
0600-0700	WHRI, South Bend, Indiana	9495	9370			
0600-0700	Voice of Hope, Lebanon	6280				
0600-0700	Voice of Malaysia, Kuala Lumpur	6175	9750	15295		
0600-0700	Radio Korea, Seoul	7275				
0630-0700	Radio Sofia, Bulgaria	11720	15160	17825		
0630-0700	Radio Finland, Helsinki	11755	9560	6120		
0630-0700	Vatican Radio African Service	17710	17730	21650		
0630-0700	BRT, Brussels, Belgium	13675	11695			
0630-0700	Radio Tirana, Albania	9500	7205			
0630-0700	Radio Polonia, Warsaw, Poland	6135	7270	15120	9675	
0630-0700	Swiss Radio International, Berne	15430	17570	21770		
0640-0700	Radio Prague Interprogramme	6055	7345	9505		
0645-0700 A	Radio for Peace Int'l, Costa Rica	7375	USB			
0645-0700	GBC Radio, Accra, Ghana	6130				
0645-0700	HCJB, Quito, Ecuador	9610	11835	(all 6050)		
0645-0700	Radio Romania Int'l, Bucharest	11810	11940	15335	17720	
		17805	21665			

0700 UTC [3:00 AM EDT/12:00 AM PDT]

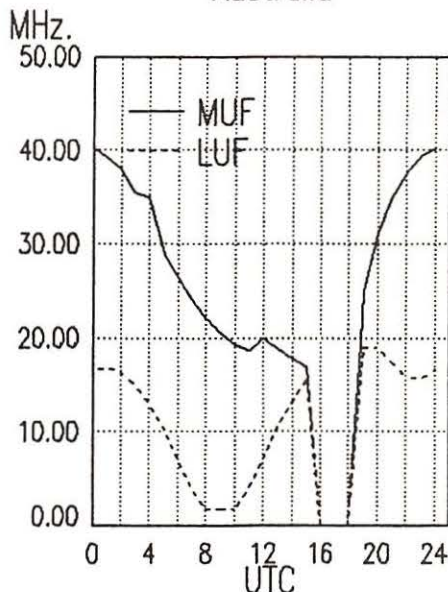
0700-0710	Sierra Leone Brdcstng.Svc.,Freetown	3316
0700-0715	Radio Romania Int'l, Bucharest	11810 11940 15335 17720
		17805 21665
0700-0725	BRT Brussels, Belgium	21815 11695 6035
0700-0730	Radio Australia, Melbourne	11880 13700 13705 15240
		15465 17630 21525 21740
		21775
0700-0730	Radio Tirana, Albania	11835 9500
0700-0750	Radio Pyongyang, North Korea	15340 11335
0700-0800 A	Radio for Peace Int'l, Costa Rica	7375 USB
0700-0800	Voice of Hope, Lebanon	6280

0700-0800	CBU, Vancouver, British Columbia	6160
0700-0800	TWR Monte Carlo	9480
0700-0800	Radio Havana Cuba	11835
0700-0800	WYFR, Okeechobee, Florida	6065 7355 13760 15566
0700-0800	Voice of the Mediterranean, Malta	9725
0700-0800	ZBC-1, Zimbabwe	7283
0700-0800 A-H	Radio New Zealand, Wellington	17675
0700-0800	BBC World Service, London	5975 7150 9410 9600
		9640 9760 11940 12095
		15070 15280 15360 15400
		21715
0700-0800	Solomon Islands Broadcasting Co.	5020 9545
0700-0800	Voice of Free China, Taiwan	5950
0700-0800	WHRI Noblesville, Indiana	9370 9495 9620
0700-0800	ABC Brisbane, Australia	9660
0700-0800	CFCF, Montreal, Quebec, Canada	6005
0700-0800	CFCN, Calgary, Alberta, Canada	6030
0700-0800	CHNS, Halifax, Nova Scotia, Canada	6130
0700-0800	Christian Science World Svc, Boston	9455 9840 11980 17780
		17855
0700-0800	Radio Moscow World Service	7315 11710 11980 12010
		12030 15060 15140 15155
		15170 15210 15280 15305
		15320 15375 15405 15520
		15540 15550 15585 15590
		17560 17570 17580 17600
		17635 17635 17665 17710
		17730 17815 17850 17860
		21495 21585 21625 21630
		21645 21655 21690 21715
		21725 21740 21745 21755
		21790 25780 (+17755 0730)
0700-0800	CKWX, Vancouver, British Columbia	6080
0700-0800	CFRB, Toronto, Ontario, Canada	6070
0700-0800	GBC Radio, Accra, Ghana	6130
0700-0800	HCJB, Quito, Ecuador	9610 11835 15270
0700-0800	KNLS, Anchor Point, Alaska	9785
0700-0800	Radio Japan, Tokyo	21500 17765 17810 17890
		21690
0700-0800	Radio Jordan, Amman	13655
0700-0800	Radio Tonga, Kingdom of Tonga	5030v
0700-0800	Voice of Malaysia, Kuala Lumpur	6175 9750 15295
0710-0800	HCJB, Quito, Ecuador(S. Pacific Sv.)	6130 9745 11925
0715-0730	Vatican Radio, Vatican City	15190 17730
0715-0800 S	Italian Radio Relay Svc, Milan	9815
0730-0800	Radio Prague Int'l, Czechoslovakia	17840 21705
0730-0800	ABC, Alice Springs, Australia	2310 (ML)
0730-0800	ABC, Katherine, Australia	2485

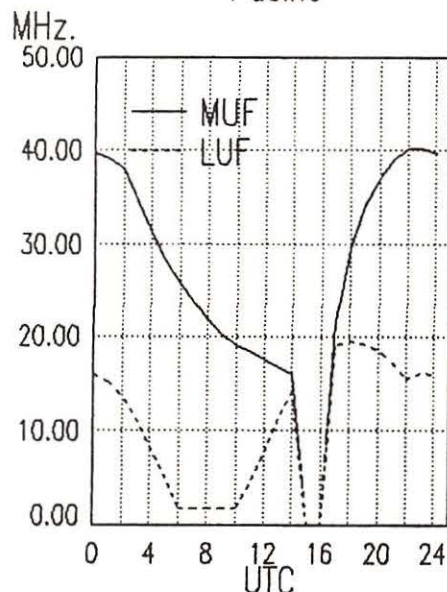
East Coast To
Far East



East Coast To
Australia



East Coast To
Pacific



MONITORING TIMES

August 1990

East Coast

frequency

section

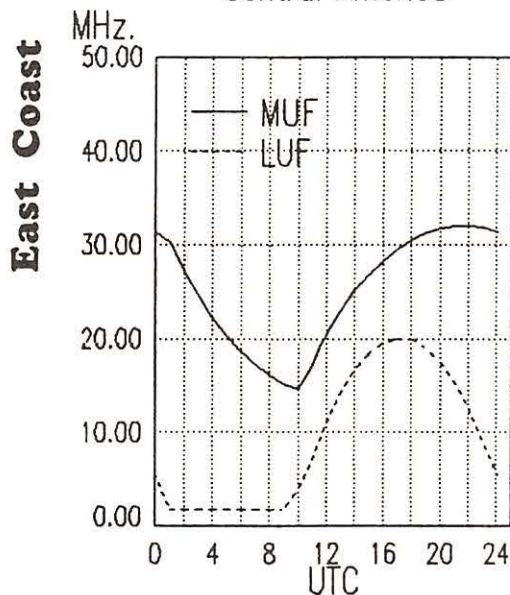
0730-0800	ABC, Tennant Creek, Australia	2325 (ML)	
0730-0800	Radio Austria Int'l, Vienna	21490 15410 13730 6155	
0730-0800	HCJB Quito, Ecuador	9745 11925	
0730-0800	Radio Australia, Melbourne	6035 11880 13700 13705	
		15240 17630 21525 21775	
0730-0800	Radio Netherlands, Hilversum	9630 9715	
0730-0800	Swiss Radio Int'l European Service	3985 6165 9535	
0737-0741v	Radio Tikhoy Okean, Vladivostok	4485 5940 7210 7320	
		9530 9635 9670 9780	
		9820 9905 11815 11840	
		11850 11915 12050 12070	
		13605 15180 15330 15415	
		15425 15530 15535 17590	
		17605 17645 17695 17860	
		21505 21515	
0745-0800	Radio Berlin Int'l, GDR	6040 6115 7185 9730	
		11785	
0745-0800	Radio Berlin Int'l, GDR	21465 21540	

0800 UTC [4:00 AM EDT/ 1:00 AM PDT]

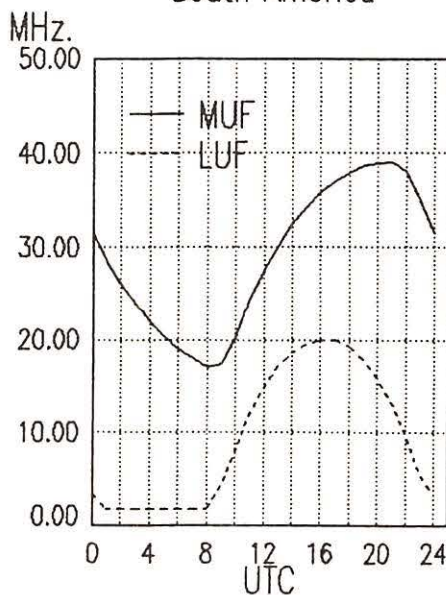
0800-0803	Radio Pakistan	17555 21575	
0800-0810	Sierra Leone Brdcstng Co., Freetown	3316	
0800-0825	BRT Brussels, Belgium	9925	
0800-0825	Radio Netherlands Int'l, Hilversum	9630 9715	
0800-0825	Voice of Malaysia, Kuala Lumpur	6175 9750 15295	
0800-0825	Radio Finland, Helsinki	17800 21550	
0800-0830 S	Radio Norway International, Oslo	15165 25730	
0800-0830	Radio Berlin Int'l, GDR	6040 6115 7185 9730	
		11785	
0800-0830	Radio Berlin Int'l, GDR	21465 21540	
0800-0830	Radio Australia, Melbourne	13700 13705 15160 15240	
		17630 17750 17795 21525	
		21775	
0800-0830	Voice of Islam, Dhaka, Bangladesh	15195 11705	
0800-0845 S	Italian Radio Relay Svc, Milan	9815	
0800-0850	Radio Pyongyang, North Korea	15180 15160 11830	
0800-0900	Radio Moscow World Service	7315 11710 11850 12010	
		12030 15060 15140 15155	
		15210 15305 15320 15375	
		15400 15405 15415 15520	
		15535 15540 15550 15580	
		15585 15590 15605 17560	
		17570 17580 17600 17625	
		17635 17665 17710 17755	
		17765 17790 17815 17850	
		21496 21585 21625 21630	

0800-0900	Trans World Radio, Monte Carlo	9480	
0800-0900	ABC Brisbane, Australia	9660	
0800-0900	BBC, London	15280 9640 12095 15070	
		15360 21715 15400 9410	
		21660	
0800-0900	ABC, Alice Springs, Australia	2310 (ML)	
0800-0900	ABC, Katherine, Australia	2485	
0800-0900	ABC, Perth, Australia	15425	
0800-0900	ABC, Tennant Creek, Australia	2325 (ML)	
0800-0900 A	Radio for Peace Int'l, Costa Rica	7375 USB	
0800-0900	Voice of Hope, Lebanon	6280	
0800-0900	CBN, St. John's, Newfoundland, Can	6160	
0800-0900	CBU, Vancouver, British Columbia	6160	
0800-0900	CFCF, Montreal, Quebec, Canada	6005	
0800-0900	CFCN, Calgary, Alberta, Canada	6030	
0800-0900	CHNS, Halifax, Nova Scotia, Canada	6130	
0800-0900	Christian Science World Svc	9455 9530 9840 11705	
		13760 17855	
0800-0900	CKWX, Vancouver, British Columbia	6080	
0800-0900	CFRB, Toronto, Ontario, Canada	6070	
0800-0900	HCJB, Quito, Ecuador (alt. S. Pac. Svc.)	6130 9610 11835	
0800-0900	HCJB, Quito, Ecuador (S. Pacific Sv)	9745 11925 15270	
0800-0900	KNLS, Anchor Point, Alaska	11715	
0800-0900	Solomon Islands Broadcasting Co.	5020	
0800-0900	WHRI, South Bend, Indiana	7355	
0800-0900	Radio Jordan, Amman	13655	
0800-0900	Radio Tonga, Kingdom of Tonga	5030v	
0800-0900	Voice of Indonesia, Jakarta	11755 11788	
0800-0900	Voice of Nigeria, Lagos	7255	
0810-0820	Bayerischer Rundfunk, Munich	6085	
0815-0900 A.S	Radio New Zealand, Wellington	9855	
0830-0855 M-A	Radio Netherlands Int'l, Hilversum	17575 21485 9770	
0830-0900	KTWR, Agana, Guam	11810	
0830-0900	Radio Australia, Melbourne	9580 17630 17750 21525	
		21775	
0830-0900	Radio Netherlands Int'l, Hilversum	17575 21485	
0830-0900	Radio Finland, Helsinki	21550 17800	
0830-0900	Swiss Radio International, Berne	9560 13685 17670 21695	
0840-0850	Voice of Greece, Athens	15625 17535	
0845-0900	KTWR, Agana, Guam	15210	
0850-0900	All India Radio, New Delhi	5960 5990 6010 6020	
		6050 6065 6100 6140	
		7110 7140 7150 7160	

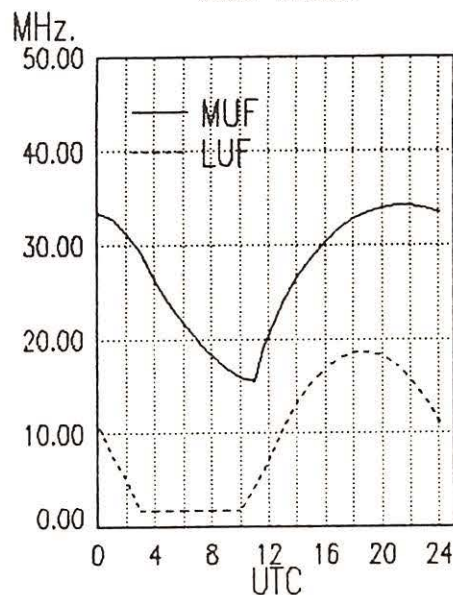
East Coast To
Central America



East Coast To
South America



East Coast To
West Coast



frequency

section

7250 7280 7295 9610
11850 15235 15250 17705

0900 UTC [5:00 AM EDT/2:00 AM PDT]

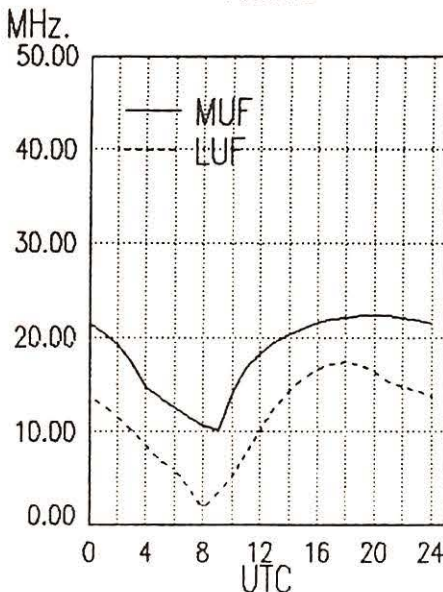
0900-0915	Radio Budapest, Hungary	15160	15220	11925	9835
		9585	6110		
0900-0920	ABC, Perth, Australia	15425			
0900-0925	BRT Brussels, Belgium	21810	26050		
0900-0925	Radio Netherlands Int'l, Hilversum	17575	21485		
0900-0930	KTWR Agana Guam	15210			
0900-0930	S Radio Norway International, Oslo	17840			
0900-0945	Radio Berlin Int'l, GDR	11785	11890		
0900-0945	Radio Berlin Int'l, GDR	21465	21540		
0900-0950	Deutsche Welle, Koln, West Germany	6160	9565	11740	15410
		17780	17820	21600	21650
		21680			
0900-1000	ABC, Alice Springs, Australia	2310	(ML)		
0900-1000	Radio Beijing, China	11755	15440	17710	
0900-1000	ABC Brisbane, Australia	9660			
0900-1000	Solomon Islands Broadcasting Co.	5020			
0900-1000	Radio Moscow World Service	11710	11850	12010	12030
		15110	15140	15155	15210
		15320	15375	15405	15415
		15520	15535	15540	15550
		15580	15585	15590	15605
		17560	17570	17580	17600
		17615	17625	17635	17655
		17665	17755	17765	17775
		17790	17815	17830	17850
		21490	21585	21625	21630
		21645	21655	21690	21715
		21725	21740	21745	21755
		21785	21790	21800	25780
0900-1000	ABC, Katherine, Australia	2485			
0900-1000	ABC, Tennant Creek, Australia	2325	(ML)		
0900-1000	S Adventist World Radio, Portugal	9670			
0900-1000	A Radio for Peace Int., Costa Rica	7375	USB		
0900-1000	KTWR, Agana, Guam	11805			
0900-1000	Radio Australia, Melbourne	5995	9580	9655	9760
		17715	21775	21825	
0900-1000	A,S Radio New Zealand, Wellington	9855			
0900-1000	S Radio Bhutan, Thimpu	5023v			
0900-1000	Voice of Hope, Lebanon	6280			
0900-1000	BBC World Service, London, England	5975	9740	11750	12095
		15070	15190	15360	15400
		17640	17705	17790	17885

0900-1000	CFCF, Montreal, Quebec, Canada	6005			
0900-1000	CFCN, Calgary, Alberta, Canada	6030			
0900-1000	CHNS, Halifax, Nova Scotia, Canada	6130			
0900-1000	Christian Science World Svc, Boston	9455	9530	9840	11705
		13760	17855		
0900-1000	CKWX, Vancouver, British Columbia	6080			
0900-1000	CFRB, Toronto, Ontario, Canada	6070			
0900-1000	FEBC Radio Int'l, Philippines	9800	11850		
0900-1000	HCJB, Quito, Ecuador(alt. S.Pac.Sv.)	6130			
0900-1000	HCJB, Quito, Ecuador(S.Pac.Serv.)	9745	11925		
0900-1000	Radio Japan Australian Svc., Tokyo	15270	17890		
0900-1000	Radio Japan General Service, Tokyo	17810			
0900-1000	Radio Jordan, Amman	13655			
0900-1000	Radio Metro, Johannesburg, S.Africa	11805			
0900-1000	Radio Tonga, Kingdom of Tonga	5030v			
0900-1000	Voice of Nigeria, Lagos	7255			
0900-1000	WHRI, Noblesville, Indiana	7355	9495		
0910-0940	M,W,H,A,S-Radio Ulan Bator, Mongolia	11850	12015		
0915-1000	S Italian Radio Relay Svc, Milan	9815			
0920-1000	ABC, Perth, Australia	6140			
0930-1045	Radio Budapest, Hungary	15160	15220	11925	9835
		9585	6110		
0930-1000	Radio Afghanistan, Kabul	17720	15250	4940	6085
		9635			
0930-0955	RRI Surabaya, Jawa Timur, Indonesia	2377			
0930-1000	CBN, St. John's, New Foundland	6160			
0930-1000	KTWR, Agana, Guam	11805			
0945-1000	Radio Berlin Int'l, GDR	6115			
0945-1000	Radio Budapest, Hungary	7220	9585	9835	11910
		11925	15160	15220	

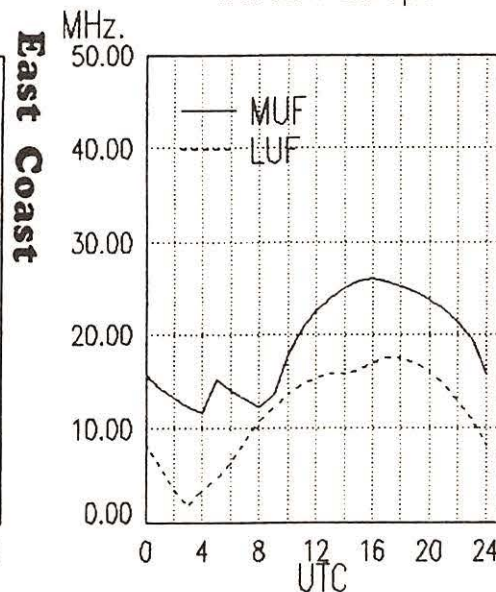
1000 UTC [6:00 AM EDT/3:00 AM PDT]

1000-1015	KTWR, Agana, Guam	11805			
1000-1030	Radio Berlin Int'l, GDR	6115			
1000-1030	Radio Afghanistan, Kabul	17720	15250	4940	6085
		9635			
1000-1030	A Radio for Peace Int., Costa Rica	7375	USB		
1000-1030	Kol Israel, Jerusalem	11585	15485	15650	17575
		17590	21745	21780	
1000-1030	Voice of Vietnam, Hanoi	9755	12035		
1000-1030	Swiss Radio International, Berne	9560	13685	17670	21695
1000-1030	Radio Australia, Melbourne	5995	9580	9655	17715
		21775			
1000-1100	Radio Beijing, China	11755	15440	17710	
1000-1100	ABC, Alice Springs, Australia	2310	(ML)		

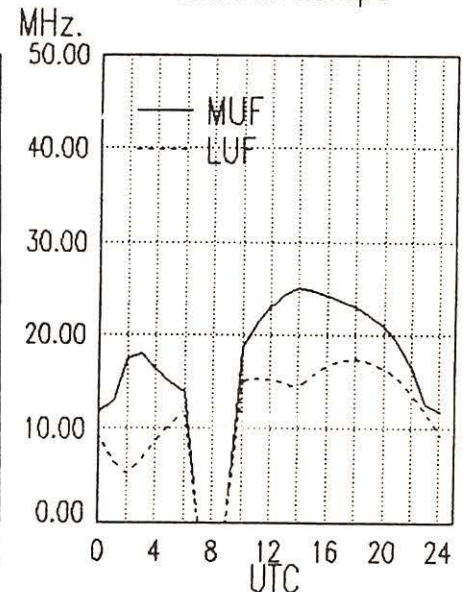
East Coast To
Alaska



Midwest To
Western Europe



Midwest To
Eastern Europe



MONITORING TIMES

August 1990

Midwest

frequency

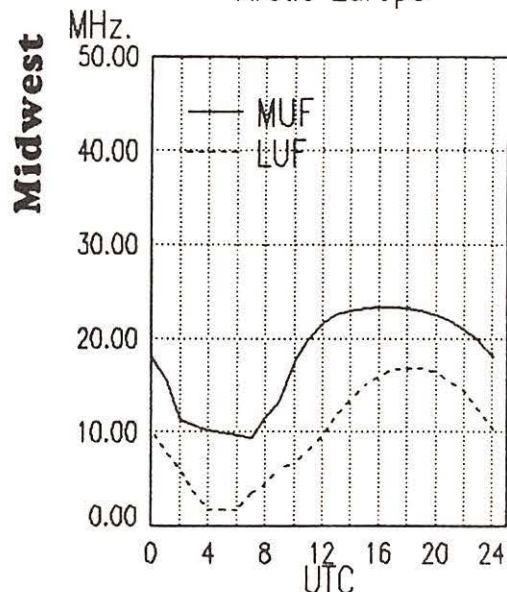
section

1000-1100	ABC, Katherine, Australia	2485		
1000-1100	Solomon Islands Broadcasting Co.	5020		
1000-1100	ABC, Perth, Australia	9610		
1000-1100	ABC, Tennant Creek, Australia	2325 (ML)		
1000-1100	KSDA, Guam	13720		
1000-1100	Radio Moscow World Service	11710 11850 12030 15060		
		15110 15140 15155 15210		
		15320 15375 15405 15520		
		15535 15540 15550 15580		
		15585 15510 17570 17615		
		17655 17665 17765 17775		
		17790 17815 17830 21495		
		21625 21630 21645 21655		
		21690 21715 21725 21740		
		21745 21775 21785 21790		
		21800		
1000-1100	All India Radio, New Delhi	17685 17387 15050 15335		
		21735		
1000-1100	BBC World Service, London, England	9410 9740 9750 12095		
		15070 15190 15360 15420		
		17705 17790 17885		
1000-1100	CBN, St. John's, Nfld, Canada	6160		
1000-1100	CFCF, Montreal, Quebec, Canada	6005		
1000-1100	CFCN, Calgary, Alberta, Canada	6030		
1000-1100	CHNS, Halifax, Nova Scotia, Canada	6130		
1000-1100	Christian Science World Svc, Boston	9455	9495 9530 15115	
1000-1100	CKWX, Vancouver, British Columbia	6080		
1000-1100	CFRB, Toronto, Ontario, Canada	6070		
1000-1100	FEBC Radio Int'l, Philippines	11850 9800		
1000-1100	ABC Brisbane, Australia	9660		
1000-1100	WYFR, Okeechobee, Florida	5950		
1000-1100	HCJB, Quito, Ecuador	9745 11925		
1000-1100	KTWR, Agana, Guam	11805		
1000-1100	KUSW, Salt Lake City, Utah	6135		
1000-1100	Radio Jordan, Amman	13655		
1000-1100	Radio Metro, Johannesburg, S. Africa	11805		
1000-1100	Voice of America-Caribbean Service	9590 11915		
1000-1100	Voice of America-Pacific Service	5985 11720 15425		
1030-1045	Radio Budapest, Hungary	15190 6110 9835 15160		
		15220		
1030-1100	Radio Austria Int'l, Vienna	15450 21490		
1030-1100	Radio Korea, Seoul	11715		
1030-1100	Radio Netherlands Int'l, Hilversum	6020 11890		
1030-1100	Radio Australia, Melbourne	5995 9580 9655 21775		
1030-1100	Adventist World Radio, Forli, Italy	7230		
1040-1050	Voice of Greece, Athens	15625 17535		
1050-1100	Radio Finland, Helsinki	15400 21550		

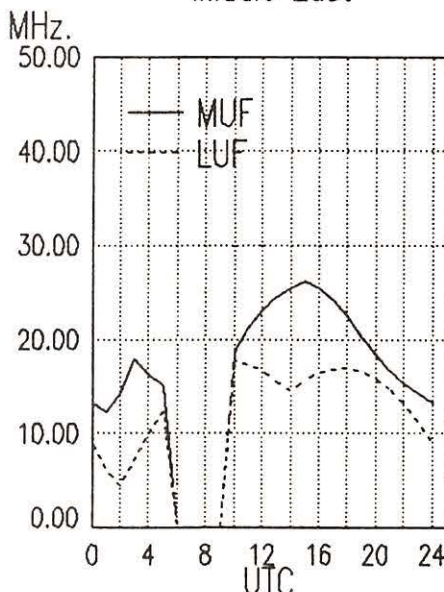
1100 UTC [7:00 AM EDT/4:00 AM PDT]

1100-1115	Azad Kashmir Radio, Pakistan	7268 4980 3665		
1100-1115	Radio Finland, Helsinki	15400 21550		
1100-1120	Radio Pakistan	17555 21575		
1100-1125	HCJB Quito, Ecuador	9745 11925		
1100-1125	Radio Netherlands Int'l, Hilversum	6020 11890		
1100-1130	Solomon Islands Broadcasting Co.	5020		
1100-1130	Radio Mozambique, Maputo	11835 11818 9525		
1100-1130	Voice of Vietnam, Hanoi	9755 12035		
1100-1130	Radio Australia, Melbourne	5995 6020 6035 6080		
		9580 9655 9710 11910		
		15465 21825		
1100-1130	Adventist World Radio, Forli, Italy	7230		
1100-1130	Swiss Radio International, Berne	13635 15570 17830 21770		
1100-1150	Radio Pyongyang, North Korea	9645 9977 11735		
1100-1150	Deutsche Welle, Köln, West Germany	15410 17765 17800 21600		
1100-1200	ABC, Alice Springs, Australia	2310 (ML)		
1100-1200	BBC World Service, London, England	9410 9515 9740 9750		
		11775 12095 15070 15360		
		15420 17640 17705 17790		
		17705 17790 17885 21470		
		21660		
1100-1200	WHRI, Noblesville, Indiana	9465 11790		
1100-1200	WYFR, Okeechobee, Florida	5950 11580		
1100-1200	Adventist World Radio, Costa Rica	9725 11870		
1100-1200	Radio Moscow World Service	11685 11850 12030 15060		
		15110 15130 15140 15155		
		15210 15305 15320 15375		
		15520 15540 15550 15585		
		15590 17570 17615 17655		
		17665 17765 17790 17815		
		17830 21495 21625 21630		
		21645 21655 21690 21715		
		21725 21740 21745 21755		
		21785 21790 21800 25780		
1100-1200	CBC, Montreal	6160		
1100-1200	SBC Singapore	11940		
1100-1200	ABC, Brisbane, Australia	9660		
1100-1200	ABC, Katherine, Australia	2485		
1100-1200	ABC, Perth, Australia	9610		
1100-1200	ABC, Tennant Creek, Australia	2325 (ML)		
1100-1200	Trans World Radio, Bonaire	11815 15345		
1100-1200	CBN, St. John's, Newfoundland, Can	6160		
1100-1200	CFCF, Montreal, Quebec, Canada	6005		
1100-1200	CFCN, Calgary, Alberta, Canada	6030		
1100-1200	CHNS, Halifax, Nova Scotia, Canada	6130		
1100-1200	Christian Science World Svc, Boston	9455 9495 9530 15115		

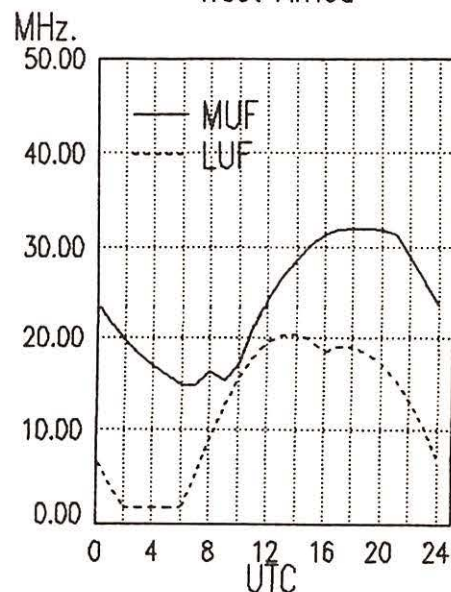
Midwest To
Arctic Europe



Midwest To
Middle East



Midwest To
West Africa



frequency

section

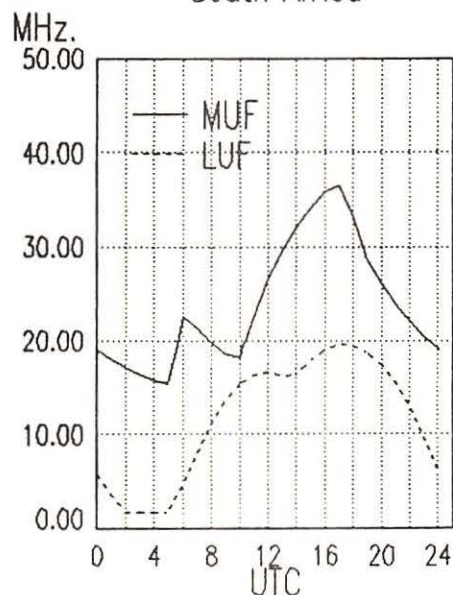
1100-1200	CKWX, Vancouver, British Columbia	6080			
1100-1200	CFRB, Toronto, Ontario, Canada	6070			
1100-1200	Radio Japan, Tokyo	6120	11815	11840	
1100-1200	Radio Jordan, Amman	13655			
1100-1200	Radio RSA, Johannesburg	9555	11805	11900	17835
1100-1200	Voice of America-Caribbean Service	9590	11915		
1100-1200	Voice of America-East Asia Service	5985	6110	9760	11720
		15155	15425		
1115-1145	Radio Nepal, Katmandu (External Svc.)	5005			
1115-1130	Vatican Radio, Vatican City	17840	21485		
1130-1145	RRI Yogyakarta, Yogyakarta, Indonesia	5046			
1130-1200	S Italian Radio Relay Svc, Milan	9815	(ML)		
	(Play-DX news every 2nd Sunday)				
1130-1200	HCJB, Quito, Ecuador	11740			
1130-1200	Radio Australia, Melbourne	5995	6020	6035	6080
		9580	9710	11910	15465
		21825			
1130-1200	Radio Thailand	11905	9655	4830	
1130-1200	Radio Austria International, Vienna	6155	13730	15430	21490
1130-1200	Radio Netherlands Int'l, Hilversum	5955	9715	17575	21480
		21520			
1130-1200	Voice of Islamic Republic of Iran	9575	9705	11715	11790
		11825			
1135-1140	All India Radio, New Delhi	6065	7110	9610	9675
		11620	11850	15320	
1145-1200	Radio Berlin Int'l, GDR	11705	11785	11890	11970
		13690	15240	15440	17780
		21465	21540		
1145-1200	Radio Berlin Int'l, GDR	6115			

1200-1230	Radio Australia, Melbourne	13690	15240	15440	17780
		21465	21540		
		5995	6020	6035	6080
		9580	9710	11910	15465
		21825			
1200-1300	ABC, Alice Springs, Australia	2310	(ML)		
1200-1300	S Italian Radio Relay Svc, Milan	9815			
1200-1300	WWCR Nashville, Tennessee	15690			
1200-1300	ABC, Brisbane, Australia	9660			
1200-1300	M-F Radio Canada Int'l, Montreal	9635	11855	17820	
1200-1300	SBC Singapore	11940			
1200-1300	ABC, Katherine, Australia	2485			
1200-1300	ABC, Perth, Australia	9610			
1200-1300	Trans World Radio, Bonaire	11815	15345		
1200-1300	ABC, Tennant Creek, Australia	2325	(ML)		
1200-1300	Adventist World Radio, Costa Rica	9725	11870		
1200-1300	BBC World Service, London, England	5965	9410	9515	9740
		11775	12095	15070	17640
		17705	17790	17885	21470
		21660	21710		
1200-1300	CBU, Vancouver, British Columbia	6160			
1200-1300	CFCF, Montreal, Quebec, Canada	6005			
1200-1300	CFCN, Calgary, Alberta, Canada	6030			
1200-1300	CHNS, Halifax, Nova Scotia, Canada	6130			
1200-1300	Christian Science World Service	9495	9465	11930	15285
1200-1300	CKWX, Vancouver, British Columbia	6080			
1200-1300	Radio Moscow World Service	7370	11685	11850	12025
		12030	15060	15110	15140
		15210	15305	15320	15375
		15540	15550	15585	17570
		17655	17665	17790	17815
		21630	21645	21655	21690
		21740	21745	21755	
		21785	21790	25780	
		(+11840 via Cuba)			
1200-1300	CFRB, Toronto, Ontario	6070			
1200-1300	HCJB, Quito, Ecuador	11740	17890	25950	USB
1200-1300	Radio Beijing, China	9530	11660	15285	17855
1200-1300	Radio Jordan, Amman	13655			
1200-1300	Radio Korea, Seoul	9570	9750		
1200-1300	Radio RSA, Johannesburg	9555	11805	11900	17835
1200-1300	Voice of America-East Asia Service	6110	9760	11715	15155
		15425	9530		
1200-1300	WHRI, Noblesville, Indiana	9465	11790		
1200-1300	WYFR, Okeechobee, Florida	5950	6015	11580	17750
1215-1225	Radio Bayrak, Northern Cyprus	6150			
1215-1300	Radio Tikhly Okean, Vladivostok	5015			
1230-1300	Voice of Turkey, Ankara	17785			
1230-1300	M-SBRT Brussels, Belgium	21820			

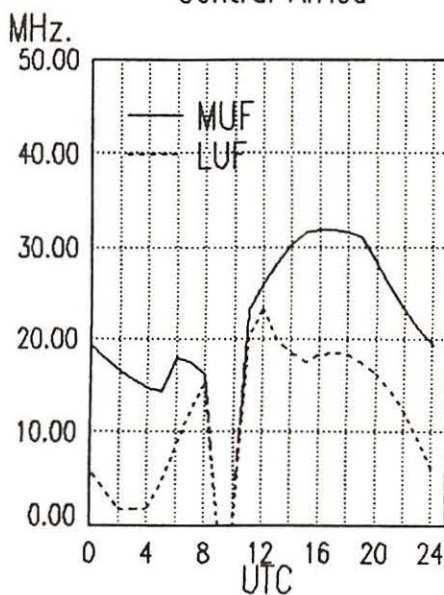
1200 UTC [8:00 AM EDT/5:00 AM PDT]

1200-1215	Vatican Radio, Vatican City	17840	17865	21485	21515
1200-1225	Radio Netherlands Int'l, Hilversum	5955	9715	17575	21480
		21520			
1200-1225	Voice of Islamic Republic of Iran	9575	9705	11715	11790
		11825			
1200-1225	M-F Radio Finland, Helsinki	15400	21550		
1200-1230	Radio Romania Int'l, Bucharest	15380	17720		
1200-1230	Radio Thailand	11905	9655	4830	
1200-1230	Radio Yugoslavia, Belgrade	17740	21555	25795	
1200-1230	M,W,H,A,S Radio Ulan Bator, Mongolia	11850	12025		
1200-1230	S Radio Norway International, Oslo	15165			
1200-1230	Radio Tashkent, Uzbekistan	7325	9715	11785	15460
		17740			
1200-1230	Radio Berlin Int'l, GDR	6115			
1200-1230	Radio Berlin Int'l, GDR	11705	11785	11890	11970

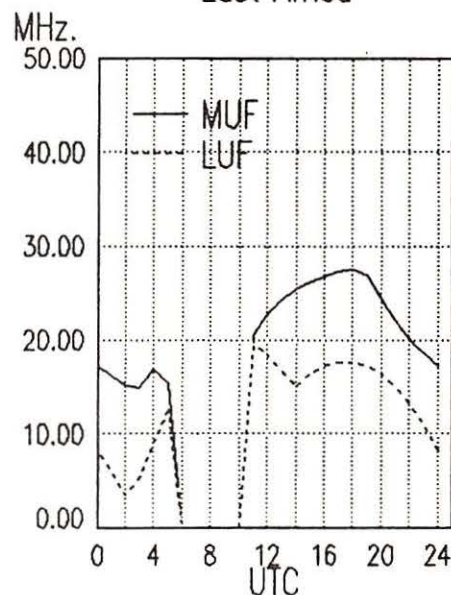
Midwest To
South Africa



Midwest To
Central Africa



Midwest To
East Africa



MONITORING TIMES

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1230-1300	M-F BRT Brussels, Belgium	21815	
1230-1300	Radio Bangladesh, Dhaka	15195	11705
1230-1300	Radio France International, Paris	9805	11670 15155 15195
		17650	21635 21645
1230-1300	Radio Australia, Melbourne	5995	6020 6035 6080
		9580	11910 15465
1230-1300	Radio Sweden, Stockholm	15190	21570 17740
1235-1245	Voice of Greece, Athens	15625	15650 17535

1300 UTC [9:00 AM EDT/6:00 AM PDT]

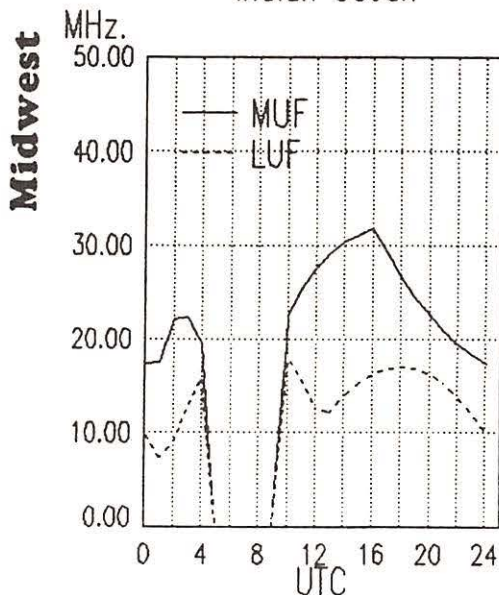
1300-1325	Radio Finland, Helsinki	15400	21550
1300-1330	Radio Tirana, Albania	11855	9500
1300-1330 S	Radio Norway International, Oslo	9590	
1300-1330	Radio Canada Int'l, Montreal	5220	11955 15385
1300-1330	Radio Australia, Melbourne	5995	6020 6035 6080
		9580	15465
1300-1330 S	Trans World Radio, Bonaire	15345	11815
1300-1330	Swiss Radio Int'l European Service	3985	6165 9535
1300-1350	Radio Pyongyang, North Korea	9325	9345 9645 13650
		15180	
1300-1400	BBC World Service, London, England	5965	9410 9515 9750
		11775	12095 15070 17640
		17705	17790 17885 21470
		21660	21710
1300-1400 S	Radio Canada Int'l, Montreal	11955	17820 11720
1300-1400	ABC, Alice Springs, Australia	2310	
1300-1400	ABC, Brisbane, Australia	9660	
1300-1400	ABC, Katherine, Australia	2485	
1300-1400	ABC, Perth, Australia	9610	
1300-1400	ABC, Tennant Creek, Australia	2325	(ML)
1300-1400	Adventist World Radio, Costa Rica	9725	11870
1300-1400	CBC Northern Quebec Service, Can	9625	
1300-1400	CBN, St. John's, Newfoundland	6160	
1300-1400	CBU, Vancouver, British Columbia	6160	
1300-1400	CFCF, Montreal, Quebec, Canada	6005	
1300-1400	CFCN, Calgary, Alberta, Canada	6030	
1300-1400	CHNS, Halifax, Nova Scotia, Canada	6130	
1300-1400	Christian Science World Service	9495	9465 11930 15285
1300-1400	CKWX, Vancouver, British Columbia	6080	
1300-1400	CFRB, Toronto, Ontario, Canada	6070	
1300-1400	Radio Moscow World Service	7135	7175 7315 7370
		9665	9885 11960 11995
		12000	12025 12030 12050
		15060	15305 15320 15375
		15540	15550 15585 15595
		17570	17655 17815 21630
		21645	21690 21740 21745

1300-1400	FEBC Radio Int'l, Philippines	21755	21785 21790
		(+11840 via Cuba)	
1300-1400	HCJB, Quito, Ecuador	11850	
1300-1400	KUSW, Salt Lake City, Utah	11740	17890 25950 USB
1300-1400	Radio Beijing, China	15590	
1300-1400	Radio Romania Int'l, Bucharest	9530	11660 11855 15285
1300-1400	Radio Jordan, Amman	11940	15365 17850 21665
1300-1400	Radio Sta. Peace & Progress, Moscow	13655	
	(from 1330 add:	11870	15180 17635 17805
1300-1400	Voice of America-East Asia Service	15435	15480 15560 17835)
		6110	9760 11715 15155
		15425	
1300-1400	WHRI, Noblesville, Indiana	9465	11790
1300-1400	WWCR, Nashville, Tennessee	15690	
1300-1400	WYFR, Okeechobee, Florida	5950	6015 11550 11580
		13695	17750
1330-1400	All India Radio, New Delhi	11760	9565
1330-1400	Radio Austria International, Vienna	15430	
1330-1345 A,S	Radio Finland, Helsinki	21550	15400
1330-1400	Radio Australia, Melbourne	5995	6020 6035 6080
		7215	9580
1330-1400	Laotian National Radio	7116v	
1330-1400 A	Trans World Radio, Bonaire	11815	15345
1330-1400	Radio Tashkent, Uzbekistan	7325	9715 11785 15460
		17740	
1330-1400	Swiss Radio International, Berne	9620	11695 15570 17830
		21695	25680
1330-1400	UAE Radio, Dubai	15320	17775 21605
1330-1400	Voice of Vietnam, Hanoi	9840	12020 15010
1345-1400	Radio Berlin International, GDR	6115	9730

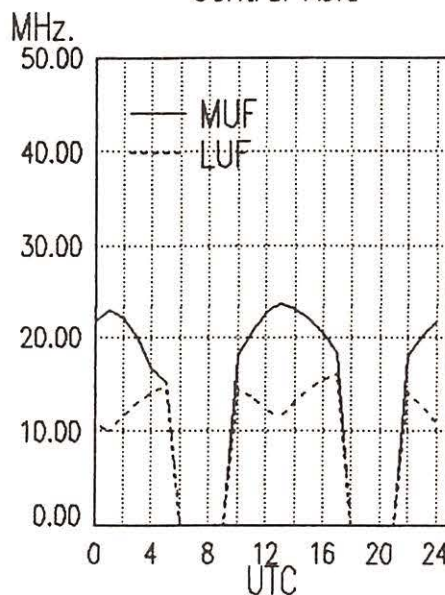
1400 UTC [10:00 AM EDT/7:00 AM PDT]

1400-1415	Azad Kashmir Radio, Pakistan	7268	4980 3665
1400-1420	Radio Jordan, Amman	13655	
1400-1430	ABC, Alice Springs, Australia	2310	(ML)
1400-1430	Radio Australia, Melbourne	5995	6020 6035 6060
		6080	7215 9580
1400-1430	ABC, Tennant Creek, Australia	2325	(ML)
1400-1430	Swiss Radio Int'l, Berne	6165	9535 12030
1400-1430	Radio Juba, Sudan	9540/9550	
1400-1430	Radio France International, Paris	11925	21780
1400-1430 S	Radio Norway International, Oslo	21710	
1400-1430	Radio Polonia, Warsaw, Poland	6095	7285
1400-1430	Radio Berlin International, GDR	6115	9730
1400-1430	Radio Sweden, Stockholm	11905	17740
1400-1430	Radio Tirana, Albania	9500	11895
1400-1500	ABC, Brisbane, Australia	9660	

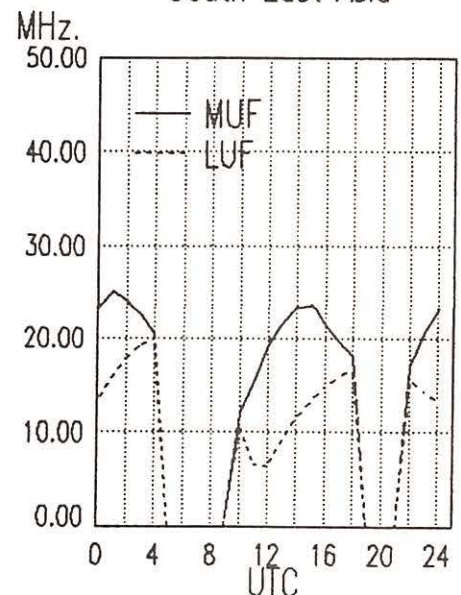
Midwest To
Indian Ocean



Midwest To
Central Asia



Midwest To
South East Asia



frequency

section

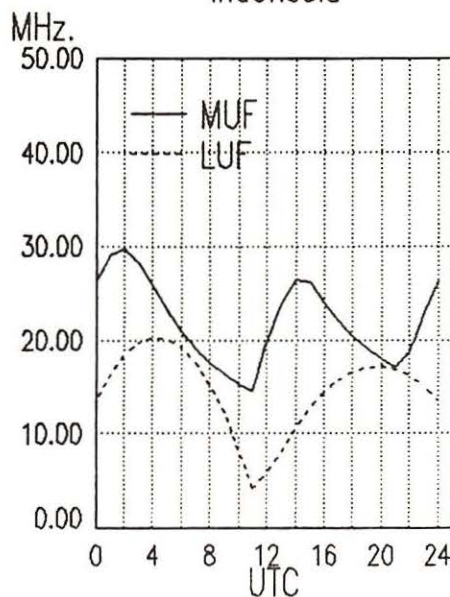
1400-1500	S	Radio Canada Int'l, Montreal	11955	17820
1400-1500		Voice of the Mediterranean, Malta	11925	
1400-1500		Radio Beijing, China	5220	7405 11815 11855
			15165	
1400-1500		Radio Korea, Seoul	9570	9750 15575
1400-1500		ABC, Katherine, Australia	2485	
1400-1500		ABC, Perth, Australia	9610	
1400-1500		All India Radio, New Delhi	11760	9565
1400-1500		BBC World Service, London, England	9410	11750 12095 15070
			17640	17705 17790 17880
1400-1500		CBC Northern Quebec Service, Can	9625	
1400-1500		CBN, St. John's, Newfoundland	6160	
1400-1500	M-A	CBCU, Vancouver, British Columbia	6160	
1400-1500		CFCF, Montreal, Quebec, Canada	6005	
1400-1500		CFCN, Calgary, Alberta, Canada	6030	
1400-1500		CHNS, Halifax, Nova Scotia, Canada	6130	
1400-1500		Christian Science World Service	9530	13625 17555 21780
1400-1500		CKWX, Vancouver, British Columbia	6080	
1400-1500		CFRB, Toronto, Ontario	6070	
1400-1500		FEBC Radio Int'l, Philippines	11850	
1400-1500		HCJB, Quito, Ecuador	11740	17890 25950 USB
1400-1500		KUSW, Salt Lake City, Utah	15590	
1400-1500		Radio Japan General Service, Tokyo	11865	11815
1400-1500		Radio Moscow World Service	7135	7370 9655 11850
			11995	12025 12030 12050
			15320	15375 15540 15585
			17625	17815 21630 21680
			21690	21740 21745 21755
			21785	21790
			(+11840 via Cuba)	
1400-1500		Radio RSA, Johannesburg	9555	11925 17835
1400-1500		Voice of America-East Asia Service	6110	9760 15155 15425
1400-1500		Voice of America-South Asia Service	7125	9645 9760 15205
			15395	
			7255	
1400-1500		Voice of Nigeria, Lagos	9465	15105
1400-1500		WHRI, Noblesville, Indiana	9465	15105
1400-1500	S	WRNO Worldwide, Louisiana	15420	
1400-1500		WWCR, Nashville, Tennessee	15690	
1400-1500		WYFR, Okeechobee, Florida	5950	6015 11580 13695
			17750	
1405-1500		WYFR, Taiwan	11550	
1405-1430		Radio Finland, Helsinki	15185	21550 11820
1415-1430		RCI European News Svc, Montreal	11935	15315 15325 17820
			15305	17795 21545
1415-1500	M-A	Radio Bhutan	5023v	
1415-1425		Radio Nepal, Katmandu	5005	7165 (alt. 3230)
1430-1500		Radio Sofia, Bulgaria	11680	15310 17825
1430-1500		Voice of Hope, Lebanon	6280	
1430-1500		Voice of Myanmar (Burma)	5990v	

1430-1500		Radio Australia, Melbourne	5995	6020 6036 6060
			6080	7215 9580 9710
			9770	12000 13745
1430-1500	F	ABC, Alice Springs, Australia	2310	(ML)
1430-1500	F	ABC, Tennant Creek, Australia	2325	(ML)
1430-1500		Radio Austria International, Vienna	6155	11780 13730 21490
1430-1500		Radio Netherlands Int'l, Hilversum	5995	13770 15150 17575
			17605	
1445-1500		Radio Berlin International, GDR	15240	17880
1445-1500	M,W,H,A,S	Radio Ulan Bator, Mongolia	9795	13780
1445-1500		Vatican Radio, Vatican City	6248	7250 9645 11740

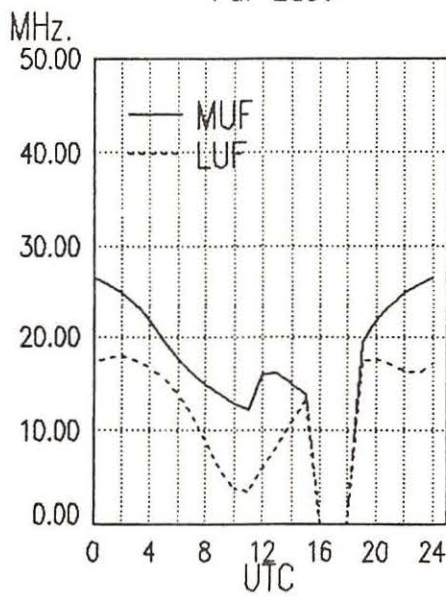
1500 UTC [11:00 AM EDT/8:00 AM PDT]

1500-1515	M,W,H,A,S	Radio Ulan Bator, Mongolia	9795	13780
1500-1515		Vatican Radio, Vatican City	11955	15090 17870
1500-1515		WYFR, Taiwan	11550	
1500-1525		Radio Netherlands Int'l, Hilversum	5955	13770 15150 17575
			17605	
1500-1530		Radio Berlin Int'l, GDR	15240	17880
1500-1530		Radio Sofia, Bulgaria	11680	15310 17825
1500-1530		Radio Sweden, Stockholm	17740	11905
1500-1530		Radio Romania Inter'l, Bucharest	11775	11940 15250 15335
			17720	17745
1500-1540		FEBA, Seychelles	11865	
1500-1550		Radio Pyongyang, North Korea	9325	9640 9977 11750
1500-1550		Deutsche Welle, Köln, W. Germany	9735	11965 17765 21600
1500-1555		Radio Beijing, China	11815	15165 7405
1500-1600		Radio Jordan, Amman	9560	
1500-1600	S	Radio Canada Int'l, Montreal	11955	17820
1500-1600		FEBA, Seychelles	9590	15330
1500-1600		Voice of the Mediterranean, Malta	11925	
1500-1600		Voice of Hope, Lebanon	6280	
1500-1600	F	ABC, Alice Springs, Australia	2310	(ML)
1500-1600		ABC, Perth, Australia	9610	
1500-1600	F	ABC, Tennant Creek, Australia	2325	(ML)
1500-1600		BBC World Service, London, England	9410	11750 11775 12095
			15070	15260 17640 17705
			17780	21470 21660 21710
1500-1600		Voice of Myanmar (Burma)	5990v	
1500-1600		CBC Northern Quebec Service, Can	9625	(ML)
1500-1600		CBN, St. John's, Newfoundland	6160	
1500-1600		CBU, Vancouver, British Columbia	6160	
1500-1600		CFCF, Montreal, Quebec, Canada	6005	
1500-1600		CFCN, Calgary, Alberta, Canada	6030	
1500-1600		CHNS, Halifax, Nova Scotia, Canada	6130	
1500-1600		Christian Science World Service	9530	13625 17555 21780
1500-1600		CKWX, Vancouver, British Columbia	6080	

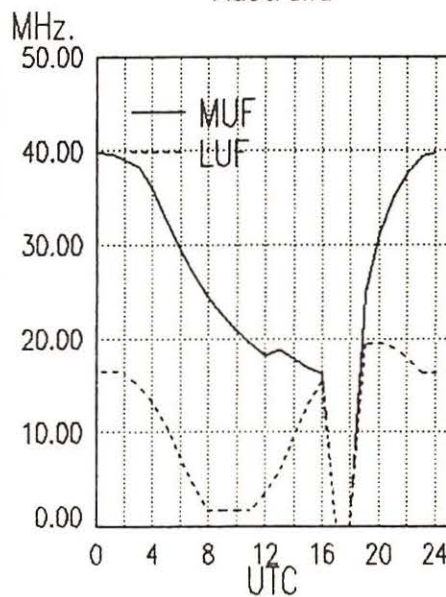
Midwest To
Indonesia



Midwest To
Far East



Midwest To
Australia



MONITORING TIMES

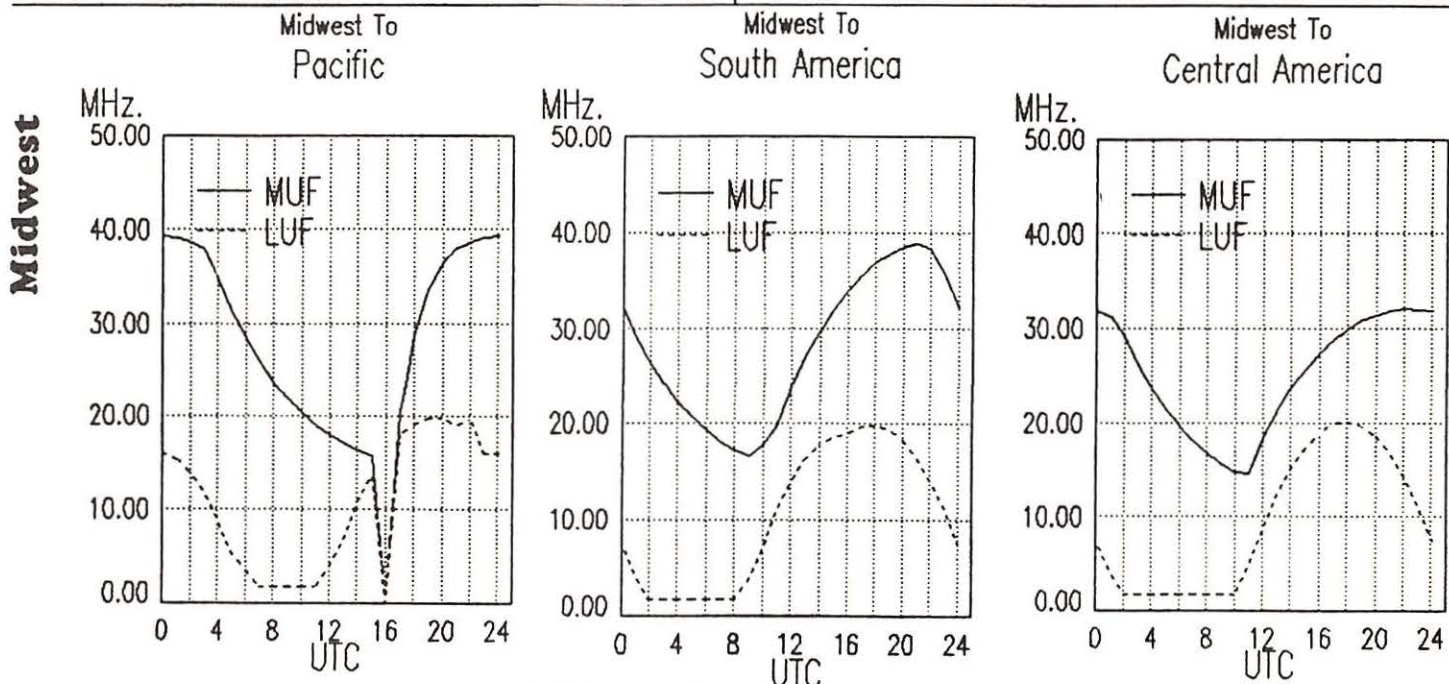
August 1990

Midwest

frequency

section

1500-1600	CFRB, Toronto, Ontario	6070			
1500-1600	FEBC Radio Int'l, Philippines	11850			
1500-1600	HCJB, Quito, Ecuador	11740	17890	25950	USB
1500-1600	T-S KNLS, Anchor Point, Alaska	11715	(or 9750)		
1500-1600	KTWR, Agana, Guam	11650			
1500-1600	KUSW, Salt Lake City, Utah	15590			
1500-1600	Radio Australia, Melbourne	5995	6020	6035	6060
		6080	7215	9580	9710
		9770	12000	13745	
1500-1600	Radio Japan General Service, Tokyo	11865	11815	21700	
1500-1600	Radio Moscow World Service	7110	9655	9755	11850
		11890	12010	15375	15435
		15540	15585	15595	17670
		17710	21630	21690	21740
		21755	21790		
		(+11840 via Cuba)			
1500-1600	Radio RSA, Johannesburg S. Africa	9555	11925	17835	
1500-1600	Voice of America-Middle East Service	9700	15205	15260	21530
1500-1600	Voice of America-South Asia Service	6110	7125	9645	9700
		9760	15205	15260	9350
		7255			
1500-1600	Voice of Nigeria, Lagos	7255			
1500-1600	WHRI, Noblesville, Indiana	15105	21840		
1500-1600	IRR WRNO Worldwide, Louisiana	15420			
1500-1600	WWCR, Nashville, Tennessee	15690			
1500-1600	WYFR, Okeechobee, Florida	5950	11830	13695	11580
		17750			
1515-1530	Radio Budapest, Hungary	15160	15220	11910	9835
		9585	7220		
		11645	15625	17535	
1530-1540	M-A Voice of Greece, Athens	17580	21810		
1530-1555	M-ABRT Brussels, Belgium	11835	9500		
1530-1600	Radio Tirana, Albania	11635	9550/9540		
1530-1600	Radio Omdurman, Sudan	17880	21500	21655	
1530-1600	Radio Sweden, Stockholm	13685	15430	17830	21630
1530-1600	Swiss Radio International, Berne	11865			
1540-1555	M-A FEBA, Seychelles	6080	7260	7295	9730
1545-1600	Radio Berlin Int'l, GDR	13690	15350	17780	
1545-1600	Radio Berlin Int'l, GDR	21740	21480	17895	17580
1545-1600	Radio Pakistan	15605	13665		
		15120	17730	21650	
1545-1600	Vatican Radio, Vatican City	11865			
1555-1600	M-A FEBA, Seychelles				
1600 UTC [12:00 PM EDT/9:00 AM PDT]					
1600-1610	M-A FEBA, Mahe, Seychelles	11865			
1600-1610	Vatican Radio, Vatican City	6248	7250	9645	11740
1600-1615	Azad Kashmir Radio, Pakistan	7268	4980	3665	
1600-1630	Radio Pakistan, Dacca	13665	15605	17555	17650
1600-1630	S Radio Norway International, Oslo				
1600-1630	Radio Polonia, Warsaw, Poland				
1600-1630	M-F Radio Portugal, Lisbon				
1600-1630	Radio Berlin Int'l, GDR				
1600-1630	Radio Berlin Int'l, GDR				
1600-1630	Voice of Vietnam, Hanoi				
1600-1640	UAE Radio, Dubai				
1600-1650	Radio Pyongyang, North Korea				
1600-1650	Deutsche Welle, Köln, W. Germany				
1600-1700	KSDA, Guam				
1600-1700	Radio Korea General Service, Seoul				
1600-1700	F ABC, Alice Springs, Australia				
1600-1700	BBC World Service, London, England				
1600-1700	Radio Australia, Melbourne				
1600-1700	ELWA, Monrovia, Liberia				
1600-1700	ABC, Perth, Australia				
1600-1700	F ABC, Tennant Creek, Australia				
1600-1700	CBC Northern Quebec Service, Can				
1600-1700	CBN, St. John's, Newfoundland				
1600-1700	Radio Moscow World Service				
1600-1700	CBU, Vancouver, British Columbia				
1600-1700	CFCF, Montreal, Quebec, Canada				
1600-1700	CFCN, Calgary, Alberta, Canada				
1600-1700	CHNS, Halifax, Nova Scotia, Canada				
1600-1700	Christian Science World Service				
1600-1700	CKWX, Vancouver, British Columbia				
1600-1700	CFRB, Toronto, Ontario				
1600-1700	KTWR, Agana, Guam				
1600-1700	KUSW, Salt Lake City, Utah				
1600-1700	Radio Beijing, China				
1600-1700	Radio France International, Paris				
1600-1700	Radio Jordan, Amman				
1600-1700	Radio Korea, Seoul, South Korea				
1600-1700	Trans World Radio-Swaziland				
1600-1700	Voice of America-Africa Service				
1600-1700	Voice of America-Middle East Service				



frequency

section

1600-1700	Voice of America-Asia Service	7125	9645	9700	9760
		15205	15260	15395	
1600-1700	Voice of Nigeria, Lagos	7255			
1600-1700	WHRI, Noblesville, Indiana	15105	21840		
1600-1700	WINB, Red Lion, Pennsylvania	15295			
1600-1700	WRNO New Orleans, Louisiana	15420			
1600-1700	WWCR, Nashville, Tennessee	15690			
1600-1700	WYFR, Okeechobee, Florida	11830	13695	17750	15566
		11580	17612	21525	21615
1610-1625 M	FEBA, Mahe, Seychelles	11865			
1615-1630 M-ARCI	European News Svc, Montreal	11935	15305	15325	17820
		21545			
1615-1620	Vatican Radio, Vatican City	9645	11740		
1630-1655	BRT Brussels, Belgium	11695	5910		
1630-1700	Radio Netherlands, Hilversum	15570	6020		
1630-1700	Radio Sta. Peace & Progress, USSR	6110	9705	11695	11745
		11775	11850	11910	11980
		12055	12065	15330	15480
		15585	17565	17615	17635
		17655	21715		
1630-1700	Radio Austria Int'l, Vienna	11780	13730	21490	

1700 UTC [1:00 PM EDT/10:00 AM PDT]

1700-1715	Kol Israel	11585	11655		
1700-1725	Radio Netherlands, Hilversum	15570	6020		
1700-1730	Radio Sweden, Stockholm	6065	9615		
1700-1730 S	Radio Norway	25730	17765		
1700-1750	Radio Bras, Brazil	15265			
1700-1800	ELWA, Monrovia, Liberia	11800			
1700-1800	Radio Beijing, China	9570	11575	15225	
1700-1800	Radio Australia, Melbourne	5995	6020	6035	6080
		7215	7240	9580	9710
		9770	11855		
1700-1800	BBC World Service, London	9410	11775	12095	15070
		15260	15310	15400	17640
		17695	21470	21660	
1700-1800	Voice of America-Africa Service	7195	9575	11920	15410
		15445	15580	15600	17785
1700-1800	Radio Moscow World Service	12005	12010	12015	15150
		15265	15540	17600	17670
		17695	21585	25375	
		(+11840 via Cuba)			
1700-1800 S-F WMLK	Bethel, PA	9465			
1700-1800	Voice of America-Middle East Service	3980	6040	9700	9760
		11760	15205	15260	
1700-1800	Voice of America-South Asia Service	7125	9645	9700	15395

1700-1800	WHRI, Noblesville, Indiana	13760	15105		
1700-1800	Christian Science World Service	9530	13625	15385	21640
1700-1800	Radio Moscow Africa Service	11690	11745	11775	11850
		11960	15230	15330	15415
		15535	15585	17565	17570
		17595	17615	17655	21565
		21630	21715		
1700-1800	CBC, Montreal	9625	(ML)		
1700-1800	Radio Surinam Int'l (via Brazil)	17750	(ML)		
1700-1800	Radio Japan, Tokyo	9535	11815	11865	
1700-1800	Radio Pyongyang, North Korea	9325	9640	9977	11760
1700-1800	KUSW Salt Lake City, Utah	15590			
1700-1800	WINB, Red Lion, Pennsylvania	15295			
1700-1800	WRNO, New Orleans, Louisiana	15420			
1700-1800	WWCR, Nashville, Tennessee	15690			
1700-1800	WYFR, Okeechobee, Florida	11830	13695	15440	17750
		17885	21500		
1700-1730	Radio Prague Int'l, Czechoslovakia	5930	6055	7345	11990
1715-1800	Radio Pakistan	11570	15605		
1730-1740	Radio Bayrak, Northern Cyprus	6150			
1730-1755	BRT Brussels, Belgium	5910	11695	13675	
1730-1800	Radio Sofia, Bulgaria	11680	15310	17825	
1730-1800	Swiss Radio Int'l, Berne	9535			
1730-1800	Vatican Radio African Service	21650	17710	17730	
1730-1800	Radio Tirana, Albania	7155	9480		
1730-1800	Radio Romania Int'l, Bucharest	15340	15365	17805	17860
1745-1800	Radio Berlin Int'l, GDR	9665	9730		
1745-1800	Radio Berlin Int'l, GDR	9760			

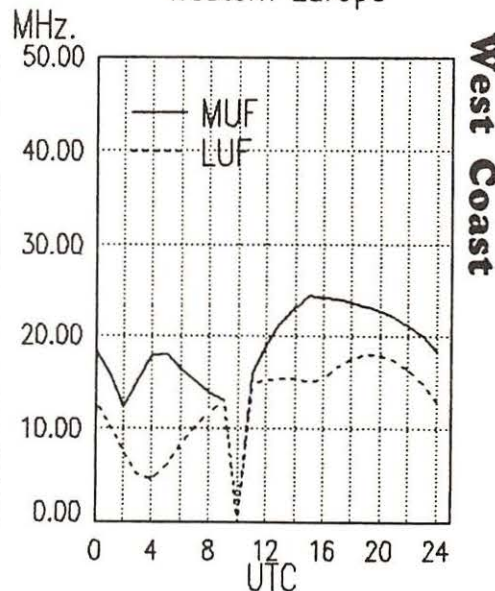
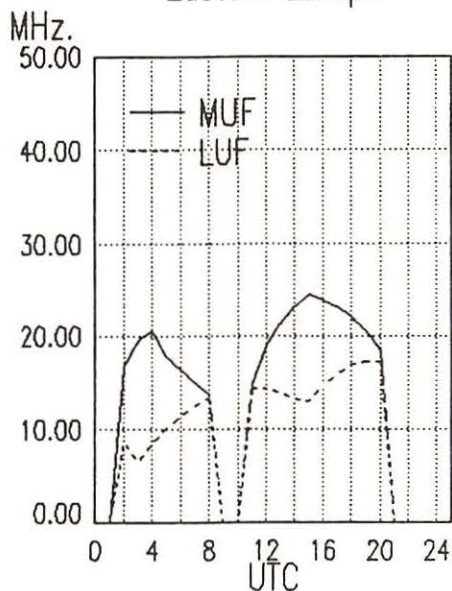
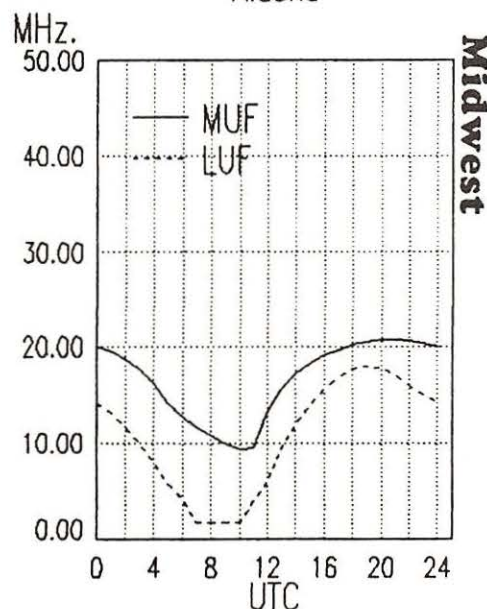
1800 UTC [2:00 PM EDT/11:00 AM PDT]

1800-1830	Radio Berlin Int'l, GDR	9760			
1800-1830	Radio Berlin Int'l, GDR	9665	9730		
1800-1830 M-F	Radio Budapest, Hungary	15160	11910	9835	9585
		7220	6110		
1800-1830	Radio Canada Int'l, Montreal	13670	15260	17820	
1800-1830 S	Radio Norway International, Oslo	21730			
1800-1830	Voice of Ethiopia, Addis Ababa	9660			
1800-1830	Radio Sofia, Bulgaria	11680	15310	17825	
1800-1830	Radio Sweden, Stockholm	6065	7265		
1800-1830	Voice of Vietnam, Hanoi	15010	12010	9840	
1800-1845	Trans World Radio, Swaziland	15210			
1800-1845	All India Radio, New Delhi	11935	15360		
1800-1855	Radio Mozambique, Maputo	9618	4855	3265	
1800-1900 F	ABC, Alice Springs, Australia	2310	(ML)		
1800-1900 F	ABC, Tennant Creek, Australia	2325	(ML)		
1800-1900	Radio Korea, Seoul	15575			
1800-1900	KVOH, Rancho Simi, California	17775			

Midwest To
Alaska

West Coast To
Eastern Europe

West Coast To
Western Europe



MONITORING TIMES

August 1990

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frequency

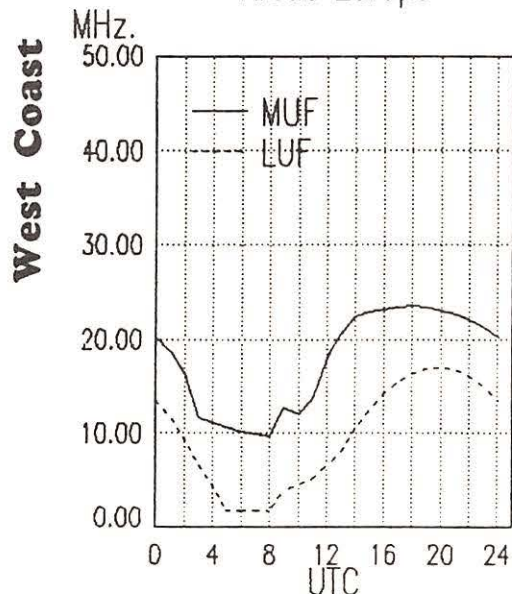
section

1800-1900	BBC World Service, London	9410	12095	15070	17640
1800-1900	Radio Australia, Melbourne	5995	6020	6035	6080
		7205	7215	7240	9580
		11855			
1800-1900	Radio Moscow World Service	11765	11840	11890	13605
		15185	15375	15540	17570
		17670	17695	21740	
1800-1900	ELWA, Monrovia, Liberia	11800			
1800-1900	M-F Radio New Zealand, Wellington	15485			
1800-1900	CBN, St. John's, Newfoundland	6160			
1800-1900	CBU, Vancouver, British Columbia	6160			
1800-1900	CFCF, Montreal, Quebec, Canada	6005			
1800-1900	CFCN, Calgary, Alberta, Canada	6030			
1800-1900	CHNS, Halifax, Nova Scotia, Canada	6130			
1800-1900	Christian Science World Service	9455	21780	21640	17555
1800-1900	CKWX, Vancouver, British Columbia	6080			
1800-1900	CFRB, Toronto, Ontario	6070			
1800-1900	KUSW, Salt Lake City, Utah	15590			
1800-1900	Radio Jordan, Amman	9560			
1800-1900	Radio Kuwait, Safat, Kuwait	13610			
1800-1900	CBC Montreal	9625			
1800-1900	S-F WMLK Bethel, Pennsylvania	9465			
1800-1900	Radio RSA, Johannesburg, S. Africa	17765	15270	7230	
1800-1900	A.S. Radio for Peace Int'l, Costa Rica	13630	21566		
1800-1900	Voice of America-Africa Service	7195	9575	11920	15410
		15445	15580	15600	17785
		17800	17870	21485	
1800-1900	Voice of America-Middle East Service	6040	9700	9760	11760
		15205			
1800-1900	WHRI, Noblesville, Indiana	13760	17830		
1800-1900	WINB, Red Lion, Pennsylvania	15295			
1800-1900	WRNO, New Orleans, Louisiana	15420			
1800-1900	WOCR, Nashville, Tennessee	15690			
1800-1900	WYFR, Okeechobee, Florida	11830	13695	15440	17885
		21500			
1815-1900	Radio Bangladesh, Dhaka	11860v	15255		
1830-1845	Radio Prague Int'l, Czechoslovakia	6055	7345		
1830-1845	Radio Finland, Helsinki	11755	9550	6120	
1830-1855	Radio Polonia, Warsaw, Poland	5995	6135	7125	7285
		9525	11840		
1830-1900	A.S. Radio Budapest, Hungary	6110	7220	9585	9835
		11910	15160		
1830-1900	Radio Sofia, Bulgaria	11660	11765	15330	
1830-1900	Radio Yugoslavia, Belgrade	11735	7215	5980	
1830-1900	Radio Riyadh, Saudi Arabia	9705	9720		
1830-1900	A.S. Radio Canada Int'l, Montreal	13670	15260	17820	
1830-1900	M-F Radio Canada Int'l, Montreal	21675	17875	15325	7235
		5995			
1830-1900	Radio Afghanistan, Kabul	4915	6020	7215	9635
1830-1900	Radio Tirana, Albania				
1830-1900	Radio Netherlands Int'l, Hilversum				
1830-1900	Radio Tikhyy Okean, Vladivostok				
1830-1900	Swiss Radio International, Berne				
1830-1900	Swiss Radio Int'l European Service				
1840-1850	M-A Voice of Greece, Athens	11645	12105	15625	
1845-1900	All India Radio, New Delhi	15360	11935	11620	9550
		7412			
1850-1855	IRR Africa No. 1, Gabon	15475			
11830	15440	17745			
7120	9480				
6020	15560	17605	21685		
5015	7335	9885	11870		
11995	15180	15435	15535		
15560	17645	17850			
9885	11955				
3985	6165	9535			
11645	12105	15625			
15360	11935	11620	9550		

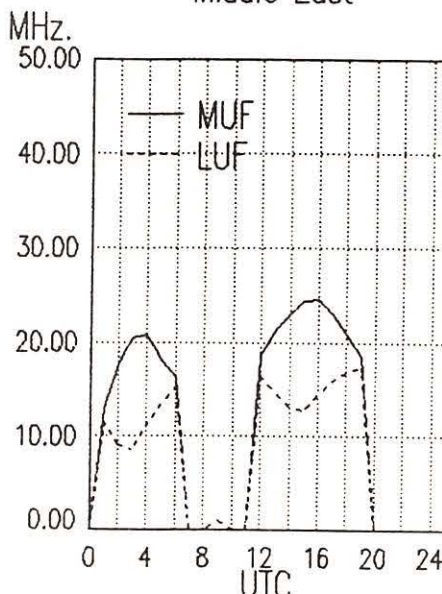
1900 UTC [3:00 PM EDT/12:00 PM PDT]

1900-1915	Sierra Leone Brdcsng.Co., Freetown	3316			
1900-1920v	Radio Omdurman, Sudan	11635			
1900-1925	Radio Netherlands Int'l, Hilversum	6020	15560	17605	21685
1900-1930	Radio Afghanistan, Kabul	9635	7215	6020	15440
		11830	17745		
1900-1930	M-F Radio Canada Int'l, Montreal	13670	15260	17820	
1900-1930	Radio Japan General Service, Tokyo	11865	11850	15270	
1900-1930	S Radio Norway International, Oslo	15165			
1900-1930	M-F Radio Portugal, Lisbon	11740	15250	21530	
1900-1930	Voice of Vietnam, Hanoi	9840	12020	15010	
1900-1930	Kol Israel, Jerusalem	15640	11605	17630	15485
		17590	12077		
1900-1945	Radio Berlin Int'l, GDR	13610			
1900-1945	All India Radio, New Delhi	7412	11620	11935	15360
		9550			
1900-1950	Deutsche Welle, Koin, W. Germany	11785	11810	13790	15390
		17810			
1900-2000	ELWA, Monrovia, Liberia	11800			
1900-2000	CBC, Montreal	9625			
1900-2000	M-F Radio New Zealand, Wellington	15485			
1900-2000	Radio Moscow British Service	7330	11630	11890	15185
		17695			
1900-2000	Radio Moscow World Service	11765	11840	12010	12060
		13605	15405	15540	15580
		17570	17670	21630	21740
		21630			
1900-2000	Radio Moscow African Svc	11960	12035	15230	15520
		17655			
		(in English & Zulu)			
1900-2000	M-F RAE, Buenos Aires, Argentina	15345			
1900-2000	Radio Beijing, China	9440	11515		
1900-2000	Solomon Islands Broadcasting Co.	5020			
1900-2000	KVOH, Rancho Simi, California	17775			

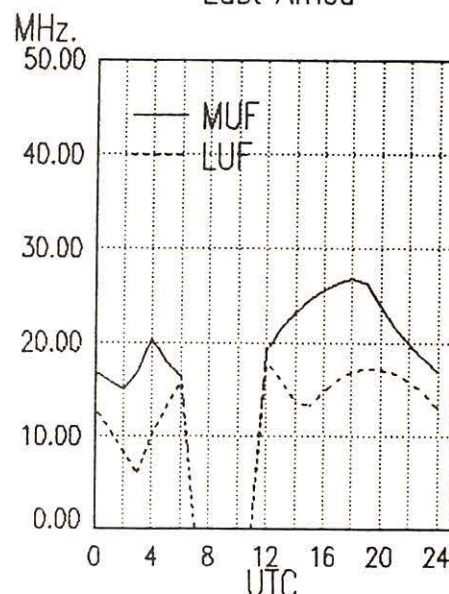
West Coast To
Arctic Europe



West Coast To
Middle East



West Coast To
East Africa



frequency

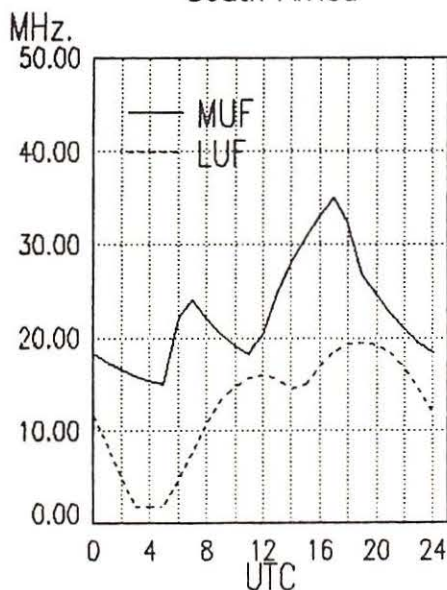
section

1900-2000	BBC World Service, London, England	9410 12095 15070 15400
		17880
1900-2000	CBN, St. John's, Newfoundland	6160
1900-2000	CBU, Vancouver, British Columbia	6160
1900-2000	CFCF, Montreal, Quebec, Canada	6005
1900-2000	CFCN, Calgary, Alberta, Canada	6030
1900-2000	CHNS, Halifax, Nova Scotia, Canada	6130
1900-2000	Christian Science World Service	9455 17555 21640 21780
1900-2000	CKWX, Vancouver, British Columbia	6080
1900-2000	CFRB, Toronto, Ontario	6070
1900-2000	GBC Radio, Accra, Ghana	6130
1900-2000	HJCB European Service, Ecuador	17790 15270 21470
1900-2000	KUSW, Salt Lake City, Utah	15590
1900-2000	Radio Algiers, Alger	9510 9685 15215
1900-2000	Radio Australia, Melbourne	5995 6020 6035 6080
		7205 7215 7240 9580
		11855
		(+13745 from 1930)
1900-2000	Radio Havana Cuba	11800
1900-2000	Radio Jordan, Amman	9560
1900-2000	Radio Kuwait, Safat, Kuwait	13610
1900-2000	A.S. Radio for Peace Int'l, Costa Rica	13630 21566
1900-2000	Spanish National Radio, Madrid	11790 15280 15375 15395
1900-2000	Voice of America-Africa Service	7195 15410 15445 15580
		15600 17785 17800 17870
		21485
1900-2000	Voice of America-Middle East Service	6040 9700 9760 11760
		15205
1900-2000	Voice of America-Pacific Service	9525 11870 15180
1900-2000	WHRI, Noblesville, Indiana	13760 17830
1900-2000	WINB, Red Lion, Pennsylvania	15295
1900-2000	S-F WMLK, Bethel, Pennsylvania	9465
1900-2000	WRNO, New Orleans, Louisiana	15420
1900-2000	WWCR, Nashville, Tennessee	15690
1900-2000	WYFR, Okeechobee, Florida	11830 13695 15440 15566
		17612 17885 21615
1920-1930	M-A Voice of Greece, Athens	9395 11645
1930-2000	M Radio Tallin, Estonia	5925
1930-2000	Radio Austria International, Vienna	5945 6155 12010 13730
1930-2000	Radio Romania Int'l, Bucharest	5955 9690 9750 11810
1930-2000	Voice of the Islamic Republic Iran	6035 9022
1935-1955	RAI, Rome, Italy	7275 9710 11800
1940-2000	M,W,H,A,S-Radio Ulan Bator, Mongolia	11850 12050
1945-2000	Radio Berlin Int'l, GDR	7185 9665 9730
1945-2000	Radio Berlin Int'l, GDR	13610 15350
1945-2000	All India Radio, New Delhi	15360 11935 9550

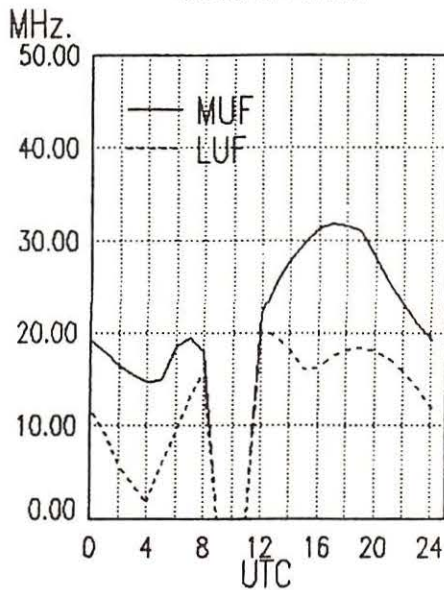
2000 UTC [4:00 PM EDT/1:00 PM PDT]

2000-2005	Vatican Radio, Vatican City	7250 9645
2000-2010	M,W,H,A,S-Radio Ulan Bator, Mongolia	11850 12050
2000-2010	Sierra Leone Brdcastng.Co., Freetown	3316
2000-2030	M-F Radio Portugal	15250
2000-2030	M Radio Ljubljana, Yugoslavia	5980 7240 9620
2000-2030	Radio Berlin Int'l, GDR	7185 9665 9730
2000-2030	Radio Berlin Int'l, GDR	13610 15350
2000-2030	Radio Budapest, Hungary	11910 15160 9835 9585
		7220 6110
2000-2030	Radio Prague Int'l, Czechoslovakia	5930 6055 7345 11990
2000-2030	Radio Romania Int'l, Bucharest	5955 9690 9750 11810
2000-2030	Voice of the Islamic Republic Iran	6035 9022
2000-2050	Radio Pyongyang, North Korea	6576 9345 9977 9640
2000-2100	M-F Radio for Peace Int'l, Costa Rica	13630 21566
2000-2100	Voice of Hope, Lebanon	6280
2000-2100	BBC World Service, London, England	5975 9410 12095 15070
		15260 15400 17755 17760
		17880
2000-2100	Radio Australia, Melbourne	6020 6035 7205 7215
		7240 9580 11855 13745
		(+6080 & 5995 until 2030)
2000-2100	All India Radio, New Delhi	9950 11860 15360
2000-2100	M-AABC, Alice Springs, Australia	2310 (ML)
2000-2100	ABC, Katherine, Australia	2485
2000-2100	M-AABC, Tennant Creek, Australia	2325 (ML)
2000-2100	CBN, St. John's, Newfoundland	6160
2000-2100	CBU, Vancouver, British Columbia	6160
2000-2100	CFCF, Montreal, Quebec, Canada	6005
2000-2100	Radio Moscow World Service	7315 11630 11670 11805
		11890 12060 13605 15185
		15315 15355 15560 17695
2000-2100	Radio Moscow Africa Service	11715 11775 11960 12035
		15520 15535 21630 21740
		9625 (ML)
2000-2100	CBC, Montreal	9795
2000-2100	Voice of Turkey, Ankara	9795
2000-2100	CFCN, Calgary, Alberta, Canada	6030
2000-2100	CHNS, Halifax, Nova Scotia, Canada	6130
2000-2100	Radio Baghdad, Iraq	13660
2000-2100	Christian Science World Service	9455 13770 15610 17555
		15265
2000-2100	CKWX, Vancouver, British Columbia	6080
2100-2200	Radio Sta. Peace & Progress, USSR	9470 9820 11830 11880
		11980 15260
2000-2100	CFRB, Toronto, Ontario	6070
2000-2100	KUSW, Salt Lake City, Utah	15590

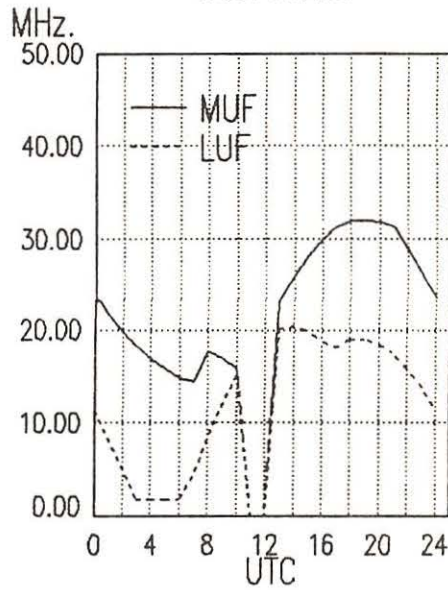
West Coast To
South Africa



West Coast To
Central Africa



West Coast To
West Africa



West Coast

MONITORING TIMES

August 1990

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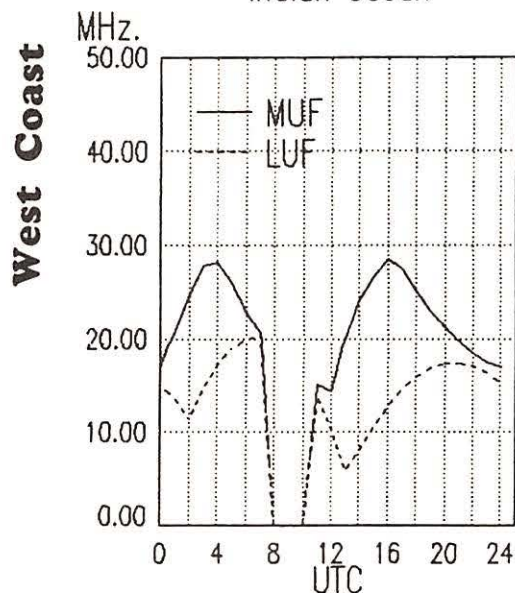
2000-2100	Radio Beijing, China	9440	9920	11500	11715
		15110			
2000-2100	Radio Kiev, Ukraine	9865			
2000-2100	ELWA, Monrovia, Liberia	11800			
2000-2100	Radio Havana Cuba	11800			
2000-2100	Radio Kuwait, Safat, Kuwait	13610			
2000-2100	Radio Jordan, Amman	9560			
2000-2100	Voice of America-Africa Service	7195	15410	15445	15580
		15600	17785	17800	17870
		21485			
2000-2100	Voice of America-Middle East Service	6040	9700	9760	11760
		15205			
2000-2100	WHRI, Noblesville, Indiana	13760	17830		
2000-2100	WINB, Red Lion, Pennsylvania	15185			
2000-2100	WRNO, New Orleans, Louisiana	15420			
2000-2100	KVOH, Rancho Simi, California	17775			
2000-2100	Solomon Islands Broadcasting Co.	5020			
2000-2100	WWCR, Nashville, Tennessee	15690			
2000-2100	WYFR, Okeechobee, Florida	11830	13695	15440	15566
		17612	17885	21525	21615
2000-2100	M-F Radio New Zealand, Wellington	15485			
2005-2100	Radio Damascus, Syria	12085	15095		
2025-2045	RAI, Rome, Italy	7235	9575	11800	
2030-2100	Radio Sofia, Bulgaria	11660	11765	15330	
2030-2100	Radio Korea, Seoul	7550	6480	15575	
2030-2100	Radio Netherlands Int'l, Hilversum	9860	13700	15560	
2030-2100	Voice of Vietnam, Hanoi	9840	12020	15010	
2045-2100	All India Radio, New Delhi	7265	7412	9550	9910
		11620	11715		
2045-2100	Vatican Radio, Vatican City	9625	11700	11760	15120
2050-2100	Vatican Radio, Vatican City	6190	7250	9645	

2100 UTC [5:00 PM EDT/2:00 PM PDT]

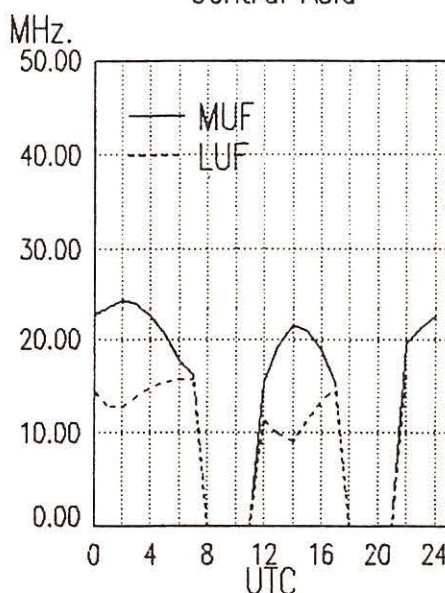
2100-2105	Radio Damascus, Syria	12085	15095		
2100-2110	Vatican Radio, Vatican City	6190	7250	9645	
2100-2115	Radio Prague Int'l, Czechoslovakia	5930	6055	7345	11990
2100-2125	Radio Netherlands Int'l, Hilversum	9860	13700	15560	
2100-2130	Vatican Radio African Service	17730	17710	21650	
2100-2130	Sierra Leone Brdcstng.Co., Freetown	3316			
2100-2130	Radio Korea, Seoul	15575	7550	6480	
2100-2130	Radio Romania Int'l, Bucharest	9690	9750	11810	11940
2100-2130	BRT Brussels, Belgium	5910	9925		
2100-2130	Radio Beijing, China	3985	11715	15110	
2100-2130	Radio Japan General Service, Tokyo	17890	17810	15270	15230
		21610			
2100-2130	Radio Sweden, Stockholm	9655	11705		
2100-2130	Swiss Radio International, Berne	9885	13635	15525	12035

2100-2130	Radio Finland, Helsinki	6120	11755	15400	
2100-2145	Radio Yugoslavia, Belgrade	7215	9620	11735	15105
2100-2150	Deutsche Welle, Köln, West Germany	9670	9765	11785	13780
		15435			
2100-2200	Radio Angola Int'l Svc, Luanda	3355	9535		
2100-2200	BBC World Service, London, England	5975	9410	12095	15070
		15260	15400	17755	17760
		17880			
2100-2200	Radio Canada Int'l, Montreal	15325	17875		
2100-2200	All India Radio, New Delhi	11715	11620	9910	9550
		7412	7265		
2100-2200	ELWA, Monrovia, Liberia	11800			
2100-2200	CBC Montreal	9625			
2100-2200	M-F Radio New Zealand, Wellington	15485			
2100-2200	Radio Moscow World Service	7315	9800	11615	11630
		11670	11745	11775	11805
		11840	11890	11985	12040
		12060	13605	15185	15230
		15315	15355	15425	15535
		15580	21740		
2100-2200	Radio Sta. Peace & Progress, USSR	9470	9820	11830	11880
		11980	15260		
2100-2200	CBN, St. John's, Newfoundland	6160			
2100-2200	CBU, Vancouver, British Columbia	6160			
2100-2200	Voice of Hope, Lebanon	6280			
2100-2200	CFCF, Montreal, Quebec, Canada	6005			
2100-2200	CFCN, Calgary, Alberta, Canada	6030			
2100-2200	CHNS, Halifax, Nova Scotia, Canada	6130			
2100-2200	Christian Science World Service	9455	13770	15610	17555
		15265			
2100-2200	Solomon Islands Broadcasting Co.	5020	9545		
2100-2200	CKWX, Vancouver, British Columbia	6080			
2100-2200	CFRB, Toronto, Ontario	6070			
2100-2200	KUSW, Salt Lake City, Utah	15590			
2100-2200	Radio Australia, Melbourne	11880	15465	17795	
		(until 2130: 7215 13745)			
		(from 2130: 15240)			
2100-2200	KVOH, Rancho Simi, California	17775			
2100-2200	Radio Baghdad, Iraq	13660			
2100-2200	Radio Beijing, China	9920	11500		
2100-2200	Radio Jordan, Amman	9560			
2100-2200	Radio for Peace, Costa Rica	13630	21566		
2100-2200	Voice of America-Africa Service	7195	15410	15445	15580
		15600	17785	17800	17870
		21485			
2100-2200	Voice of America-Middle East Service	6040	9700	9760	11760
		15205	11710		
2100-2200	Voice of America-Pacific Service	11870	15185	17735	
2100-2200	WHRI, Noblesville, Indiana	13760	17830		

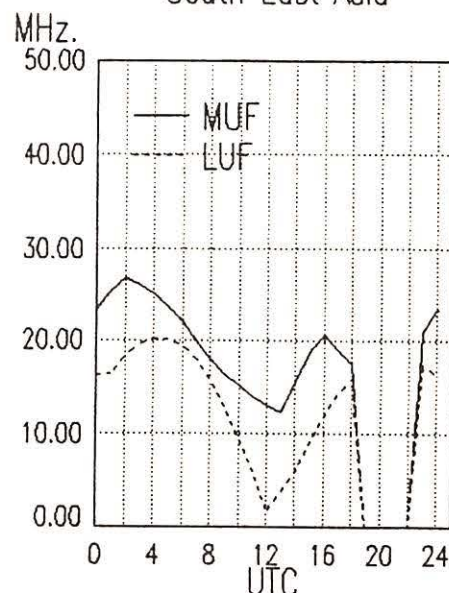
West Coast To
Indian Ocean



West Coast To
Central Asia



West Coast To
South East Asia



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2100-2200	WINB, Red Lion, Pennsylvania	15185	
2100-2200	WRNO Worldwide, Louisiana	13720	
2100-2200	WWCR, Nashville, Tennessee	15690	
2100-2200	WYFR, Okeechobee, Florida	11830 13695 15566 17612	
		17885 21525 21615	
2110-2200	Radio Damascus, Syria	15095 12085	
2130-2200	Kol Israel, Jerusalem	15640 12077 11605 17575	
		17590 17630	
2130-2200	Radio Sofia, Bulgaria	11660 15330	
2130-2200	Radio Vilnius, Lithuania	6100 9675	
2130-2200	Radio Canada Int'l, Montreal	11880 15150 17820	
2130-2200	HCJB, Qullo, Ecuador	15270 17790	
2145-2200	Radio Berlin International, GDR	5965 7295	

2200 UTC [6:00 PM EDT/3:00 PM PDT]

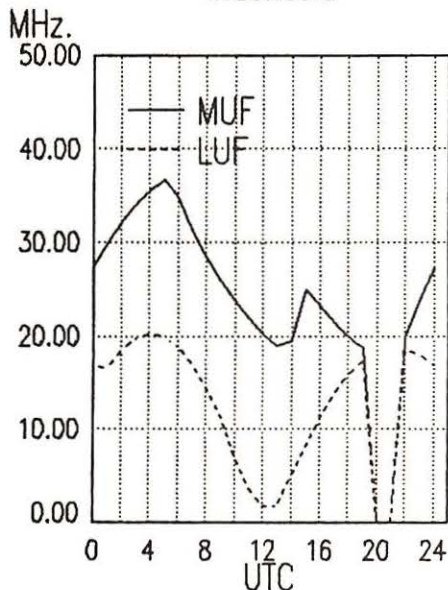
2200-2205	Radio Damascus, Syria	15095 12085	
2200-2215	M-H Radio New Zealand, Wellington	15485	
2200-2215	Sierra Leone Brdcstng.Co., Freetown	3316	
2200-2215	M-AABC, Alice Springs, Australia	2310 (ML)	
2200-2215	ABC, Tennant Creek, Australia	2325 (ML)	
2200-2215	M-F Voice of America-Caribbean Service	9640 11880 15225	
2200-2225	RAI, Rome, Italy	5990 7235 9710	
2200-2230	Radio Beijing, China	3985	
2200-2230	Radio Berlin International, GDR	5965 7295	
2200-2230	Radio Vilnius, Lithuania	6100 11790 13645 15180	
		15455 15485	
2200-2230	ABC, Katherine, Australia	2485	
2200-2230	Radio Canada Int'l, Montreal	5960 9755 11905	
2200-2230	Radio Sofia, Bulgaria	11660 15330	
2200-2230 S	KGEI, San Francisco, California	15280	
2200-2230 S	Radio Norway International, Oslo	17730	
2200-2245	All India Radio, New Delhi	7412 9550 9910 11620	
2200-2300	BBC World Service, London, England	5975 6005 6175 6195	
		7325 9410 9590 9915	
		11750 12095 15070 15260	
		15400 17750 17830	
2200-2300	CBC Northern Quebec Svc, Canada	9625	
2200-2300	CBN, St. John's, Newfoundland	6160	
2200-2300	Radio Korea, Seoul	15575	
2200-2300	Radio Moscow North American Svc	11670 11690 11710 11780	
		11800 12040 12050 13605	
		15315 15355 15425 15580	
		15595 17735	
2200-2300	Radio Moscow World Service	11615 11745 11775 11985	
		15140 15560 17570 21690	
		(from 2230 add: 7315 15480 17655 17850 17890)	

2200-2300	Voice of Turkey, Ankara	9445 9665 9685 17785	
		17880	
2200-2300	CBU, Vancouver, British Columbia	6160	
2200-2300	CFCF, Montreal, Quebec, Canada	6005	
2200-2300	CFCN, Calgary, Alberta, Canada	6030	
2200-2300	CHNS, Halifax, Nova Scotia, Canada	6130	
2200-2300	Christian Science World Service	9465 15275 15300 15405	
		17555	
2200-2300	CKWX, Vancouver, British Columbia	6080	
2200-2300	CFRB, Toronto, Ontario	6070	
2200-2300	KUSW, Salt Lake City, Utah	15590	
2200-2300	Voice of Hope, Lebanon	6280	
2200-2300	Radio Australia, Melbourne	11880 13605 15240 15465	
		17715 17795 21740	
2200-2300	Radio Havana Cuba	7140	
2200-2300	Radio for Peace Int'l, Costa Rica	13630 21566	
2200-2300	Radio Tonga, Kingdom of Tonga	5030v	
2200-2300	Voice of America-East Asia Service	7120 9770 11760 15185	
		15290 15305 17735 17820	
		9852 11805 15345 15370	
2200-2300	Voice of America-Eur/Pac. Service	17610	
2200-2300	Voice of Free China, Taiwan	17750 21720	
2200-2300	United Arab Emirates R., Abu Dhabi	9600 11985 13605	
2200-2300	WHRI, Noblesville, Indiana	13760 17830	
2200-2300	WINB, Red Lion, Pennsylvania	15185	
2200-2300	WRNO Worldwide, Louisiana	13720	
2200-2300	WWCR, Nashville, Tennessee	15690	
2200-2300	WYFR, Okeechobee, Florida	11580 11830 13695 17612	
		17885 21525	
2205-2230	Vatican Radio, Vatican City	9615 11830 15105	
2230-2300	Voice of Vietnam, Hanoi	9840 12020 15010	
2230-2300	Radio Polonia, Warsaw, Poland	5995 6135 7125 7270	
2230-2300	Radio Tirana, Albania	7215 9480	
2230-2300	Swiss Radio Int'l, European Service	6190	
2245-2300	All India Radio, New Delhi	15110 11745 11715 9910	
		9535	

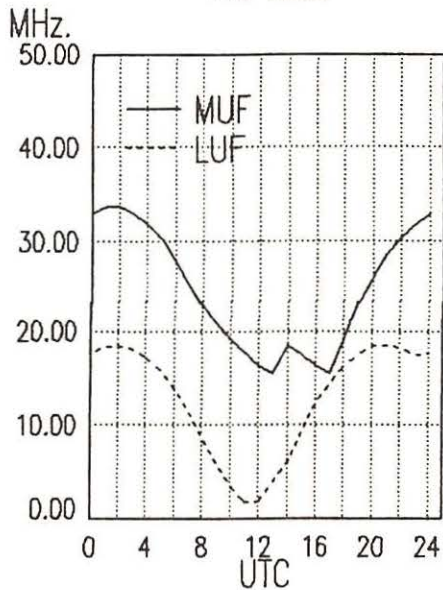
2300 UTC [7:00 PM EDT/4:00 PM PDT]

2300-2310	Sierra Leone Brdcstng.Co., Freetown	3316	
2300-2315	FEBC, Manila, Philippines	6030	
2300-2325	Radio Finland, Helsinki	11755 15185	
2300-2330	Kol Israel, Jerusalem	11605 9435 15640	
2300-2330 S	Radio Norway Int'l, Oslo	15165	
2300-2330	Radio Canada Int'l, Montreal	9755 11730	
2300-2345	WYFR, Okeechobee, Florida	5985 11580 15170	
2300-0000	Adventist World Radio, Costa Rica	9725 11870	

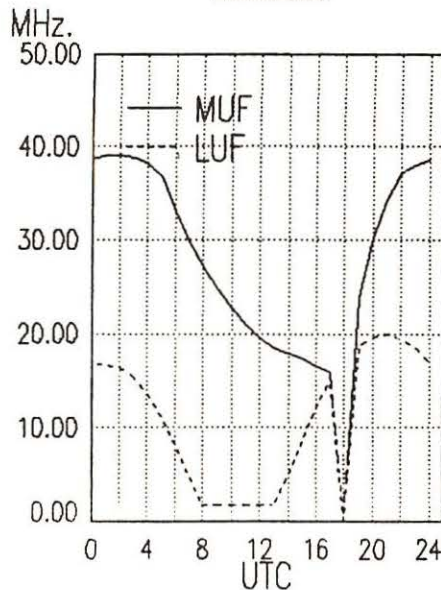
West Coast To
Indonesia



West Coast To
Far East



West Coast To
Australia



West Coast

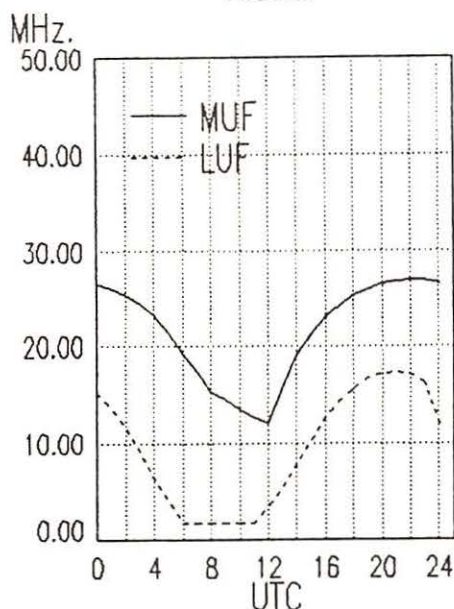
frequency

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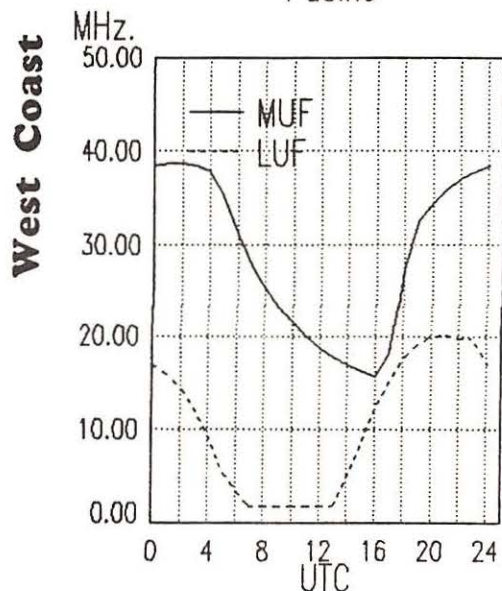
2300-0000	Radio Moscow North American Svc.	11670	11690	11710	11780
		11800	12040	12050	13605
		15315	15355	15425	15580
		15595	17735		
2300-0000	Radio Moscow World Service	12005	15140	15480	15550
		15590	17570	17600	17620
		17655	17730	17850	21585
		21690	21790		
2300-0000	Radio Sofia, Bulgaria	11660	15330		
2300-0000	CBN, St. John's, Newfoundland	6160			
2300-0000	CBU, Vancouver, British Columbia	6160			
2300-0000	CFCF, Montreal, Quebec, Canada	6005			
2300-0000	CFCN, Calgary, Alberta, Canada	6030			
2300-0000	CHNS, Halifax, Nova Scotia, Canada	6130	15405		
2300-0000	BBC World Service, London, England	5975	6175	6195	7325
		9410	9590	9915	11750
		15260			
2300-0000	Christian Science World Service	9465	15275	15300	17555
		15405			
2300-0000	Radio for Peace Int'l, Costa Rica	13630	21566		
2300-0000	Radio Kiev, Ukraine	11790	13645	15180	15485
		15525			
2300-0000	CKWX, Vancouver, British Columbia	6080			
2300-0000	CBC Montreal	9625			
2300-0000	CFRB, Toronto, Ontario	6070			
2300-0000	KSDA, Guam	15125			
2300-0000	KUSW, Salt Lake City, Utah	15590			
2300-0000	Radio Australia, Melbourne	11880	13605	15240	15465
		17630	17715	17750	17795
		21740			
2300-0000	Radio Japan General Service, Tokyo	11835	15195	17810	21610
		17765			
2300-0000	Radio Luxembourg	6090			
2300-0000	Radio Pyongyang, North Korea	11735	13650		
2300-0000	Radio Tonga, Kingdom of Tonga	5030v			
2300-0000	Voice of America-East Asia Service	7120	9770	11760	15185
		15290	15305	17735	17820
2300-0000	United Arab Emirates R., Abu Dhabi	9600	11985	13605	
2300-0000	WHRI, Noblesville, Indiana	13760	17830		
2300-0000	WINB, Red Lion, Pennsylvania	15145			
2300-0000	WRNO, New Orleans, Louisiana	13720			
2300-0000	WWCR, Nashville, Tennessee	15690			
2305-2355	Radio Polonia, Warsaw, Poland	5995	6135	7125	7145
		7270			
2330-0000	Radio Canada International, Montreal	5960	9755		
2330-0000	Voice of Vietnam, Hanoi	9840	12020	15010	
2330-0000	BRT Brussels, Belgium	9925	13675		
2330-0000	M-A Radio Budapest, Hungary	6110	9520	9585	9835
		11910	15160		

2330-0000	Radio Korea, Seoul	15575
2330-0000	Radio Tirana, Albania	6120 9760 11825
2335-2345	M-A Voice of Greece, Athens	9395 11645
2345-0000	Radio Berlin International, GDR	9730 13610 13690 15240

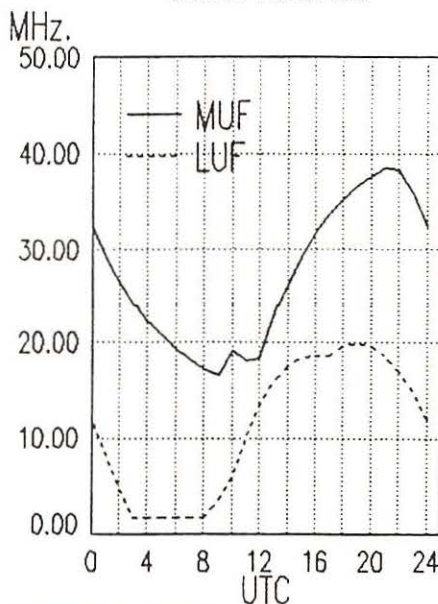
West Coast To
Alaska



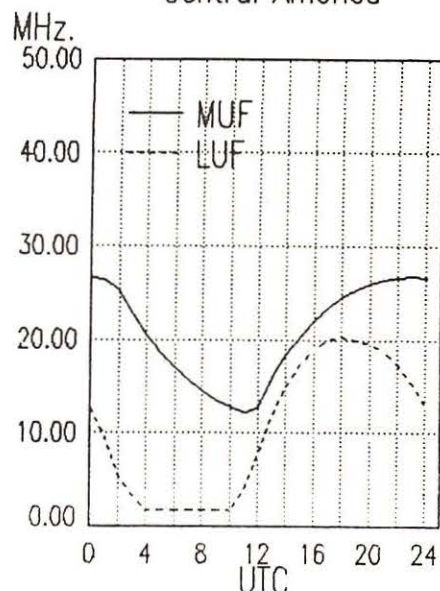
West Coast To
Pacific



West Coast To
South America



West Coast To
Central America



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Philips' DC777 World Band Car Radio



Why haven't there been any good world band car radios?

Well, for one thing, world band radio has only recently come to life in North America. Manufacturers have been struggling just to get good portables and tabletop models into consumers' hands. Some popular models, such as from Sony, Sangean and Kenwood, have been selling faster than they can be made.

Ignition Noise Limits Reception

The big bugaboo with world band car radios is ignition noise. Except for diesels, car engines have spark plugs -- and they do just that, spark. When you're listening to a strong station down the road, that's of minor importance. But your favorite station half a world away can be clobbered by the rat-a-tat-tat of those tireless little spark plugs.

Here's another thing. Most people drive during the rush hours, not the evening prime when signals fill the airwaves. There's not all that much to hear at those times, and signals tend to be weaker, too. Those weak signals don't come through nicely through ignition noise.

Still, one of the most common requests received at *Monitoring Times* is, "Where can I find a world band radio for my car?" This question even arose in a recent article in *U.S. News & World Report*.

Over the years various converters have been offered to allow AM car radios operate within the shortwave spectrum. Also, some German and Dutch radios offer perfunctory coverage, usually of the 49 meter band. But the results have been invariably poor, and you can't tell the frequency to which the radio is tuned.

Much More Than World Band

So, for all of us it's great news to come across a decent world band car radio -- the \$500 Philips DC777. It's a full-blown car stereo designed for in-dash installation, complete with AM, FM, longwave, auto-reverse cassette, enough amplifier power to drive four speakers... and shortwave coverage from 3200 to 21850 kHz.

Easy -- and Safe -- to Use

Press a single button marked "SW" and you can step through the various world band segments, which are easily seen in the display as 90 meters, 60 meters, and so forth. Then press either the up or down search button, and the DC777 will silence itself, then search the band in 5 kHz steps until it locks onto a strong world band station. The radio can also be fine tuned in 1 kHz increments with a pair of slewing buttons, but that's usually not necessary in the autosearch mode.

The DC777 doesn't have a tuning knob, but there is direct frequency entry and digital frequency display. Press a button on the face

of the radio, and out eases a small drawer with a twelve-button keypad at a handy 45-degree angle. The six-over-six button configuration doesn't lend itself to handy operation while your car is zipping along, but the software calls for very little button-pushing, anyway. This means you can enter a frequency quickly, like when you're stopped at a traffic light. To hear the BBC on 5975 kHz, for example, just press 5, 9, 7, 5, Enter -- and there it is.

You can also store up to 20 favorite stations in four pushbutton memory banks. Each bank stores up to five frequencies, while another button allows you to carousel, one-by-one, through the four banks. All this adds up to superior ergonomics, and safe driving, too.

Sounds Good, Too

For all that, audio quality is where the DC777 really shines. When it's connected to high-quality speakers, the radio produces world band audio that is among the best I've heard. Sometimes, strong world band stations sound almost as good as local AM broadcasters. That the radio excels with strong signals is just as well, because it doesn't have any provision for selecting a narrower bandwidth or single-sideband -- options that are all but necessary for tough-signal reception.

To repeat: If you are considering buying a radio for world band listening in your car,

Philips can be reached at: Philips Car Stereo, 32605 West Twelve Mile Road, Farmington Hills, Michigan 48334. Also, the radio is now being carried by some world band specialty stores, such as Universal Radio in Ohio and Atlantic Ham Radio in Ontario.

PASSPORT'S "RDI White Paper" equipment reports contain everything found during its exhaustive tests of communications receivers, antennas and advanced portables. These reports are now available

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Cobra SR-901 Programmable Scanner

While Uniden Bearcat, Uniden Regency and Uniden Radio Shack scanners seem to dominate the marketplace, there are some Uniden Cobras as well. The recent SR-901 is an example of an unusual scanner with a niche of its own. Although a Uniden mainframe, the tuning scheme is distinctively Cobra.

What's inside the white plastic cabinet?

The 901 is basically a ten-channel, programmable desktop scanner. It comes with a 12 volt wall power adaptor and plug-in whip (Motorola connector). Although it could be operated mobile, the top-mounted control panel resists convenient dash mounting.

Sensitivity--0.5 microvolts or better--measures up to other scanners. Frequency coverage is 29-54, 136-174 and 400-512 MHz narrowband FM. Specified selectivity is

normal for most scanners as well: 50 kilohertz wide at -55 dB. Scanning speed is ten channels per second; there is no search function.

The squelch control is a simple on/off switch, although there is a screwdriver adjustment hole on the base of the scanner to allow any desired setting of the threshold. Audio output is 800 milliwatts for 10% total harmonic distortion into an internal 8 ohm speaker. A rear-apron jack is provided for the attachment of an external speaker or earphone.

A large LCD frequency display allows readout to four decimal places--refreshing for low priced scanners--and shows channel number as well. But it is unilluminated, so nighttime viewing must be externally assisted. If you are in a lighted area, no problem; if you are in bed, you should be sleeping anyway.

Unusual tuning scheme

Frequency selection and memory entry are unique. There is no keypad; an up/down scrolling key is used in conjunction with a fast/slow control to find the frequency of interest. A band-key allows band stepping to select basic ranges. Once found, the frequency is entered by pressing the MEMORY key; the display blinks twice to confirm entry into memory.

There is a lockout provision so that temporarily-undesired channels may be skipped over during the scanning sequence. The LCD shows "L" on the channels selected to be locked out, and a dash is present when squelch is on. A large knob controls volume and also provides off/on power selection.

The Cobra SR-901 carries a manufacturer's suggested retail price of \$149.95 but is commonly available at a discount from MT advertisers.

In Pursuit of the Personal Phone

I'm sorry, but Mr. Jordan is away from his desk. May I have him return your call?" Just about anyone who has ever placed a phone call to a business has heard this excuse. If a New York firm has its way, though, you'll never hear it again.

Personal Communication Networks or "PCNs" using lightweight telephones, will enable employees to roam the office free of cords yet be in constant contact by phone. One system is expected to begin testing in Orlando, Florida, and Houston, Texas, within two years.

PCNs telephones are wallet size phones that use high-frequency microwave signals to connect with other PCNs or with the local wired phone system. And because their microwave signals don't travel very far -- some estimate about 600 feet -- you can operate more of them on a frequency than you can with cellular phones. That, says industry officials, means that the price is spread out among a larger group of users.

According to J. Shelby Bryan, chairman of Millicom, the New York firm that's launching the PCNs, "the cost of the phone units would be low, perhaps \$100 or less." Officials at American Personal Communications, a subsidiary of Millicom, told reporters that they hoped that the phones would ultimately list for between \$50.00 and \$75.00.

Foiling Caller ID

Speaking of telephones, a California company has set up a pair of 900 telephone numbers to foil the new caller identification services. Caller identification services allow people to see the phone number of the person calling them -- before they answer.

To block the transmission of their own telephone number, the caller simply dials 900-STOPPER, then after a second tone, the number of the person or company they wish to reach. The recipient of the call sees only a string of zeros on their display screen and the telephone bill shows only the call to the 900 number and not the actual number called.

For international calls, the number is 900-RUNWELL. The cost is reportedly \$2.00 a minute for domestic calls and \$5.00 a minute for international calls.

There is a down side to this, however. Call stopper also prevents police from tracing calls from kidnappers and other terrorists.

Digital Audio Tape

The smoke has cleared and the attorneys have left the courtrooms. One of the most protracted legal battles in history is over. Digital audio tape recording is finally here.

The problem with digital audio tape recording has nothing to do with technology -- manufacturers were ready to

roll out the first DAT units three years ago -- but rather morality.

According to recording industry statistics, four out of ten people over the age of ten have tape recorded music in the past year and that causes performers to lose royalties. Already, home taping may be causing as much as a 22 percent loss in prerecorded music sales. The near perfect DAT, they feel, will entice even more people to copy music.

Still, the time has come and by the time you read this, Matsushita should have a US\$1,200 unit for sale under the Technics label (Panasonic in Europe and Japan).

Fire Videos

Tired of Hollywood's idea of what firefighting is like? Bored with Hollywood actors trying to mimic real firemen? Quik-Vid Productions has THE REAL THING! So reads the brochure for Richard Quick's catalogue of fire videos.

For \$27.50 plus \$5.00 shipping and handling, you can watch footage of "a top floor fire in a three story welfare hotel" which features an injured fireman being rescued (Long Island Fires - Volume 6), a fully involved

five story building fire complete with building collapse (FDNY On the Job - Volume 1) and in Fire Buff America - Volume 1, a fully involved pier fire in California and a three story wood frame house fire in New Jersey.

To order or to get a copy of the catalogue write Quik-Vid Productions, 905 Waverly Place, Baldwin, New York 11510.

1990 Consumer Electronics Freebie

Did you know that ninety-eight percent of all American households own a TV? Sixty-eight percent own a VCR? Ninety percent enjoy an audio system?

Did you know that while prices in other industries have skyrocketed in price, consumer electronics products remain good values?

This information and much more is available in "The 1990 Annual Review -- Entertainment and Education, Yesterday, Today and Tomorrow," available free from the Electronics Industries Association/ Consumer Electronic Group (EIA/CEG), Communications Department,

2001 Eye Street N.W., Washington, D.C. 20006. It's an interesting booklet on the consumer electronics field and it's free for the asking.

Catalogue Mailbag

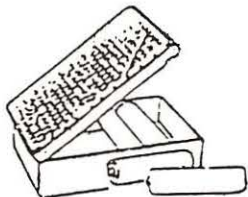
• "Tired of monitoring all that boring traffic from police, fire, aircraft, ambulances, railroads, the feds, baby monitors and cellular phones?"



asks Fred Fuller of Ft. Bragg, North Carolina. "Well here's your opportunity to get in on the ground floor of an exciting new monitoring activity -- tuning in bats!"

Fred's not kidding. He passed along a copy of the Bat Conservation International catalogue which offers the QMC Mini-2 Bat Detector. The catalogue describes the unit as being able to "detect bats' echolocation signals."

It comes complete with weatherproof headphones, and LF, HF and mic outputs. It operates on AA batteries and has a range of 15 to 160 kHz. The price is \$245.00 from BCI, P.O. Box 162603, Austin, Texas, 78716.



● Bob Fraser of Cohasset, Massachusetts, passes along a copy of the Campmor catalogue, which features, among other things, a solar-powered battery charger. Catalogue number 22310-C, the Basic Designs solar "AA" battery charger lists for \$16.99. You can get yours by calling 1-800-526-4784 or writing to P.O. Box 997, Paramus, New Jersey 07653.

● "Don't push or otherwise advertise the Sonic Ear 9000 [See the July edition of this column]. It is one giant hoax," says James Moore of Leesburg, Florida. "In order to turn the volume up enough to hear, there is a loud squeal; and any movement or touching of the unit itself produces a great deal of static. In my opinion, this product is a piece of junk."

● Finally, from a reader who signs himself simply as W3ISD, comes a letter questioning some of our reasoning on The Acclimator ["Catalogues," July 1990], a self-adjusting watch that's designed to help travelers make the switch from one time zone to another. In the article, we suggested that "with a regular watch, a person who gets on a plane at 9:00 a.m. Philadelphia time would spend six hours in the air, arriving in Los Angeles at 2:00 p.m. Boston time. "I don't know about that," says W3ISD. "Certainly, arriving in LA after six hours of flight at 3:00 p.m. Philly time is OK!"

Feeling Left Out?

Have your favorite communications (Police, Fire, etc) moved to the 800MHz band? Are the scanners available which access this band too expensive? If you are like many scanning enthusiasts, this can be a real dilemma. For those of you who are still in a futile search for 800 MHz coverage on your hand held scanning radio, GRE America, Inc. has a product for you. Introducing the newly developed **Super Converter™ II** which has all of the features that you have come to enjoy in our **Super Converter™ 8001** (810 - 912 MHz coverage, etc.), and more.

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That's it for this edition of "Catalogues," the column designed to keep you on the cutting edge of high-tech gizmos. You can participate by keeping an eye out for neat stuff in your mail and sending it to us at P.O. Box 98, Brasstown, NC 28902.

Additional thanks to Alan Masyga of Winona, Minnesota and Karl Heil of Blue Mounds, Wisconsin, for their input.

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Winning the Circuit-Board Battle

I know a lot of would-be experimenters who avoid the rewards of project construction because they don't want to become involved with circuit-board fabrication. These timid souls are afraid to take even the first step toward creating home-made circuit boards. The thought of laying out a pattern, let alone using chemicals to remove the unwanted copper from a circuit board, seems to be a barrier that can't be surmounted. Such fears are without reasonable basis. As the common expression goes, "It's all in your mind!"

The first and most important consideration is that your circuit board need not look like a professional one. Your artwork will not be displayed at a crafts show or museum, so why worry? Furthermore, your product will probably be enclosed in a cabinet where your friends can't see it. The second consideration is, of course, that the board have the necessary conductors to accommodate your pet circuit.

Alternatives to Etched Circuit Boards

You can create nonetched circuit boards quickly and easily. This does away with messy chemicals and careful pattern layouts. In effect, two of these techniques result in simple point-to-point component mounting—similar to assembling a circuit on perforated noncopper board material. This is known

by many experimenters and radio amateurs as "ugly construction." As is true of all circuit assembly, we need to keep the component leads as short and direct as possible in order to minimize unwanted stray inductance. This is especially important when we build RF circuitry.

Figure 1 shows two quick methods that I use for making circuit boards. The example at A shows how you can create isolated pads or islands on a piece of copper-clad board material. The PC board must be held perfectly flat on a flat piece of wood or metal when making the cuts with a hack saw.

C clamps are useful for ensuring flatness of your work. Use a saw that has a sharp blade. This will provide clean cuts in the copper. Make your copper islands as small as you wish. The more islands you create the greater the number of cuts required.

The finished product may now be used as a breadboard for experimental circuits, or you can use it for a finished product. Simply solder the various components to the pads while building the circuit "as you go." Pads may be joined by wires that are snipped from resistor and capacitor leads, thereby increasing the effective area of any one or more pads.

If you wish to prevent the copper from tarnishing (in projects you plan to keep) you

may immerse the completed board in tin-plating solution.¹ If this is done, it will be necessary to clean the copper surfaces with fine-grade steel wool, then clean the copper with rubbing alcohol. This will assure a spotless smooth tin-plating job. The tin plating allows the solder to flow more smoothly than is possible with some copper surfaces.

Figure 2B shows how you can make a circuit board without the need to cut the copper with a saw. This technique consists of using an unetched piece of copper-clad circuit board as a base. The isolated pads are individual pieces of square, round or rectangular PC-board material that are affixed to the base board by means of quick-setting epoxy cement. You can decide the shape of your isolated pads. Hot-melt glue may also be used for attaching the pads to the base board. The epoxy cement is better for long-term board use.

The copper surface of the base unit is used as the circuit ground bus. This ensures short leads for the circuit components that are returned to circuit ground. Needless to say, you may use thin wood, linoleum or Formica as the base upon which you glue the isolated pads. If this is done, you will not have the advantage afforded by the copper surface that can serve as the ground conductor.

I cut my isolated pads with a heavy-duty paper cutter that I bought as used equipment from an office-supply surplus house. It cuts glass-epoxy board material and thin aluminum (18 gauge or higher) with ease. Do not attempt to use a paper cutter with phenolic-based circuit-board material: The phenolic will shatter. A power coping saw may be used to cut phenolic board material. Glass-epoxy boards may be cut with ease when using a paper cutter.

A Third Method

I have made a number of circuit boards by using my Dremel hobby motor. I install a pointed abrasive wheel (fine tip) in my motor, then cut the desired pattern free-hand in the copper surface of the PC-board stock. This takes a steady hand and some practice, but it's a quick and inexpensive method. Picasso would have shuddered, had he seen some of my work. But, the circuits performed well despite my lack of artistic skill.

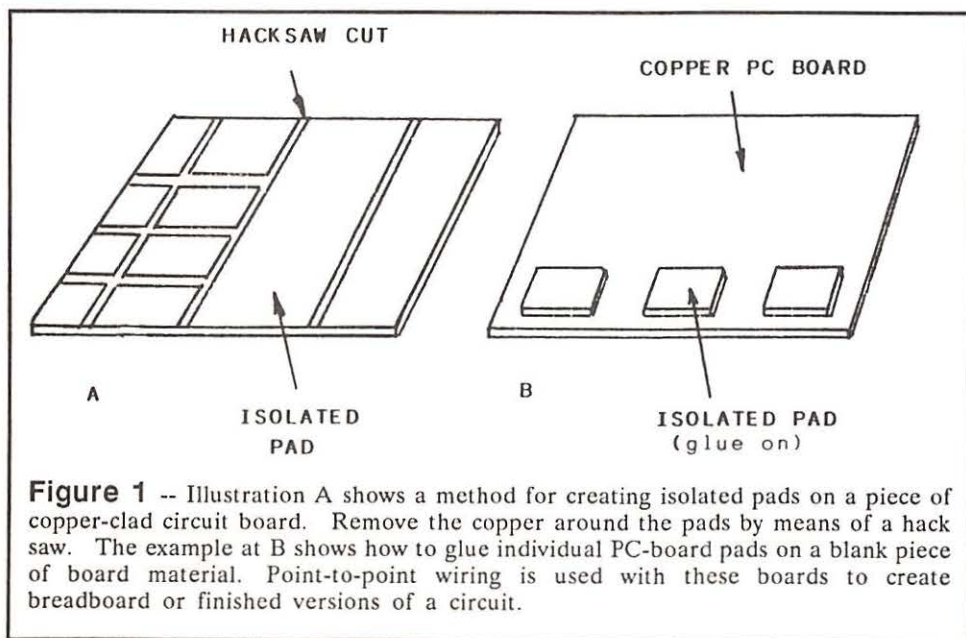


Figure 1 -- Illustration A shows a method for creating isolated pads on a piece of copper-clad circuit board. Remove the copper around the pads by means of a hack saw. The example at B shows how to glue individual PC-board pads on a blank piece of board material. Point-to-point wiring is used with these boards to create breadboard or finished versions of a circuit.

Commercial Breadboards

Figure 2 shows a scale pattern for a universal breadboard that I use for much of my construction work. This board, plus others with different patterns, is available by mail.² The boards are tin plated and drilled. This permits placing the components on the nonfoil side of the board.

If you are a person who is familiar with PC-board etching, you may wish to use the Figure 2 pattern for making your own boards. If you have layout materials (tape and pads), you may want to prepare your own universal breadboard. A different pattern may be more to your liking, or you may want more than one IC site on the board -- or no IC site at all.

If You Decide to Etch

Getting started with the etching process is easy and inexpensive. Ferric chloride etchant fluid is the most popular of the chemicals for making PC boards. Ammonium persulfate crystals (white) may be dissolved in water and used as an etchant. Ferric chloride is available in small bottles from Radio Shack, or you may mix your own solution from ferric-chloride crystals. The supplier in reference number 1 also sells these crystals.

You will need a plastic or glass tray in which to perform the etching. The solution should be heated to 90-110 degrees F to assure quick etching (usually 20-30 minutes). Use rubber gloves when handling etchant and avoid contact with your skin.

You may use quick drying enamel paint as an etch resist. Paint your pattern on the PC board copper with an artist's brush, allow it to dry, then immerse the work in etchant. Wide masking tape may be pressed firmly on the blank PC board for use as an etch resist. The PC pattern is drawn on the tape with a pen. A hobby knife, such as an X-Acto, is then used to cut away the tape for the areas that will be etched away. You may also use layout tape and pads that are etch-resistant.

Closing Remarks

I have scarcely addled the dust in this discussion of how to make PC boards. There are countless other simple methods that the experimenter may use to produce quick and easy boards. The techniques I have highlighted here are the best, perhaps, for the rank beginner. You can graduate to

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more sophisticated methods after you gain some confidence while employing these approaches. The important consideration is, for now, to give circuit-board construction a try. It may be the stimulus you've needed to become more active in your hobby workshop!



References

- 1 Circuit Specialists, P.O. Box 3047, Scottsdale, AZ 85271-3047. Catalog available. Call 800-528-1417.
- 2 FAR Circuits, 18N640 Field Court, Dundee, IL 60118. Phone: 312-426-2431.

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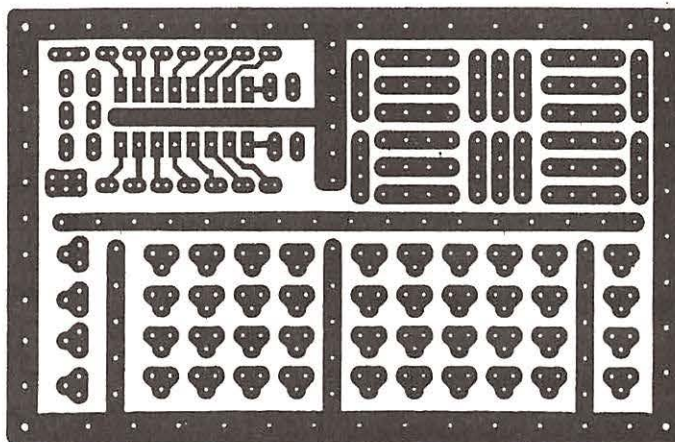


Figure 2 -- Scale pattern for the FAR Circuits (see reference 2) universal breadboard. This type board is useful for most experimental work, and is suitable as a foundation for finished products.

Mixed Bag

This month's "Experimenter's Workshop" column is going to be a bit of a mixed bag. Going back to the Sony 2010 problem about zapping Q-303, several newcomers to the hobby have written in panic asking about using external antennas with this receiver.

Sony 2010, One More Time:

Follow the instructions that are included with the unit. DO NOT attempt to connect high gain, external antennas to this receiver via the External Antenna connector as this is not a diode protected input and damage to Q-303 could result. I would definitely stay away from the extremely long Beverage antennas (favored by several well-known Indo DXers from the midwest and west coast) as these are subject to rain static, which could easily damage Q-303.

If you need to put an external antenna on the '2010, use the Sony AN-1 active antenna, Inline Components AC-1 Micro Module or Datong AD-270/370 active antennas. I have used each of these units with my 2010 with no adverse affects.

If you must use an external wire antenna, try the Sony AN-61 wire antenna (sold as an accessory to the new Sony ICF-SW7600 receiver) or use a piece of wire about 20 feet long with an alligator clip on one end. Attach the alligator clip to the 2010 whip antenna and run the wire around the room or out a nearby window. Since the whip antenna is diode protected, the chances of any damage occurring to Q-303 are minimal.

ALWAYS INSURE THAT ANY EXTERNAL ANTENNA IS WELL AWAY FROM ANY POWER LINES OR OTHER SAFETY HAZARDS. D.A. "Mike" Michael, W3TS, provided a good suggestion using PC Board fuse connectors. Solder one of these beasts onto the antenna wire in place of the alligator clip. The fuse holder (available at your local Radio Shack store) snaps onto the whip and won't scar up the chrome antenna.

Adapting High Impedance to Low

Speaking of W3TS, Mike submitted a useful mod for you radio amateurs who need (or want) to use a high impedance microphone (like the D-104) with the newer transceivers that require a low impedance mike. Best of all, most all high impedance mikes (like ceramic and crystal units) should work well with this simple circuit.

Power for the circuit is supplied on the audio line as with the more modern electric

microphones. This could be rewired for a 9 Volt battery which could be included in the adaptor box along with the associated circuitry (see Figure 1). Mike built the prototype using the "sky wiring" technique into a large IF can with a stereo phone jack acting as the mike input and a copper clad board bolted over the other end. For those not familiar with "sky wiring" this technique uses an un-etched piece of PC board material as a ground plane. All components are arranged so that their grounded pins are directly soldered to the PC board while their other ends are sticking up in the "sky."

These leads are bridged together in accordance with the schematic diagram to complete the circuit. This technique affords a very reliable way to breadboard and insure the prototype circuits work first time. Mike reports that his audio has never sounded better using a properly matched D-104 mike with his ICOM IC-735. Thanks, Mike, for a great mod.

Filter Mods

Jerry Beaudin wrote several months ago and included some Murata filter info that I have found to be very informative. Many retail outlets that also support a repair facility specialize in filter modifications for receivers like the ICOM R-71, Kenwood R-2000 and R-5000, Sony '2010, etc. The main purpose of these modifications is to narrow the IF passband down to where the selectivity is improved and your "stock" radio is turned into

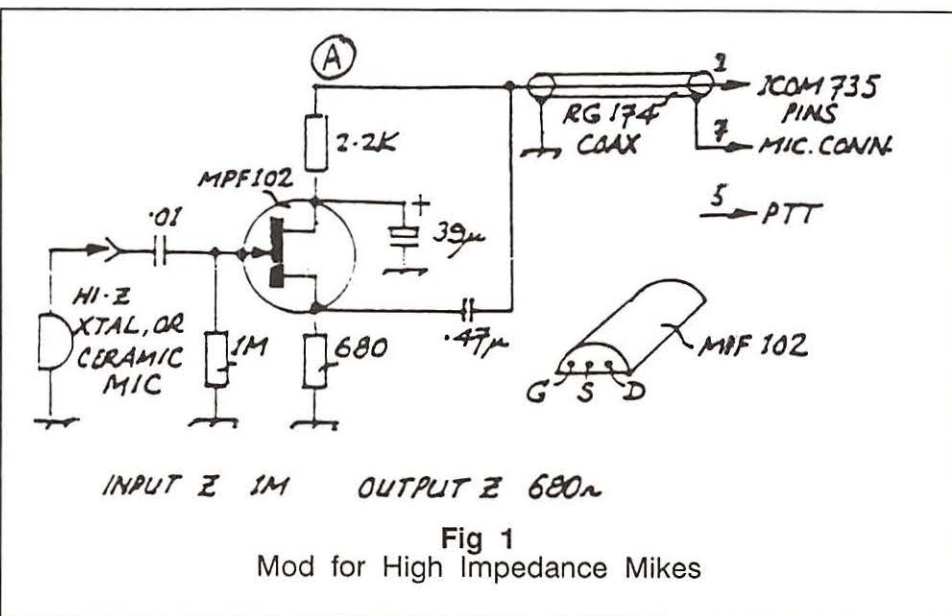
a lean, mean DX machine.

The heart of these mods lies in replacing the stock filters with narrower filters. Murata supplies many of the receiver manufacturers with the stock filters. They also manufacture narrower filters that can act as "drop in" replacements. I am currently researching these filters and will have more info in an upcoming EW column on which filters would be good choices as replacements for your receiver's stock filters.

If you just can't wait and want your favorite DX getter upgraded ASAP, try Universal Shortwave, Reynoldsburg, Ohio, EEB in Vienna, Virginia and Radio West, Vista, California. These folks do this kinda stuff on a daily basis. Don't forget to call and get prices and shipping costs before you send your rig off in the mail.

Expanding the Kenwood

Butch Howell, N7KDJ, sent along the mods for increasing frequency coverage on the Kenwood TM-721A and TM-731A dual band (VHF/UHF) amateur transceivers for MARS operation and expanded receiver coverage. Referring to Figure 2, locate resistor R-57 (on the TM-721A) or R-25 (on the TM-731A) and cut one end. Re-initialize the transceiver by turning it off. Press and hold the "F" button while turning the radio on. Then release the "F" button. This clears out the entire memory but it is a simple task to reload the memory channels which were erased during re-initialization.



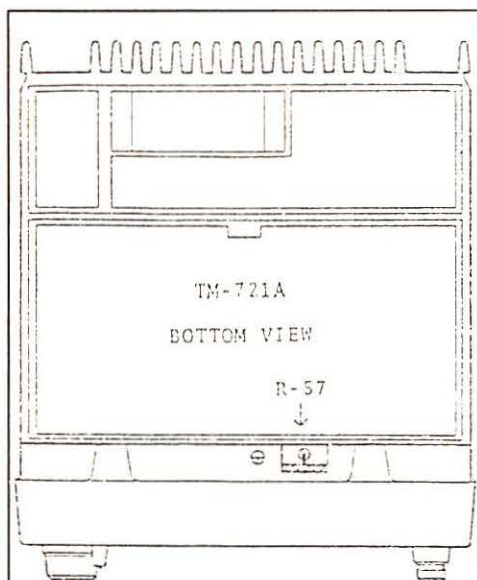


Fig. 2
Kenwood Frequency Expansion

One of the interesting side effects of this mod is the additional 100 MHz of UHF spectrum that suddenly appears on the TM-731A. This unit now receives from 400 to 500 MHz continuously. There is no expansion of transmit range, however. VHF receive range (136 to 174 MHz) remains unaffected on both units. The additional 100 MHz of UHF coverage is not available after the mod is performed on the TM-721A.

Bill Taylor provided some additional mods for the R-390 which I will be sharing with the EW readership in the future. Nice going, Bill. It's scary to realize that there are people out there who share my macabre sense of humor.

Taking to the Field

Summer time is the time to take the radio along on family outings, camping and fishing trips, vacations, etc. I recently went to the west coast and took my brand new Sony ICF-SW7600 receiver (see Larry Magne's review in June 1990 *MT*). I had high hopes of hearing some rare Indos and PNGs while in Palouse, Washington.

Unfortunately, the WWV A Index never went below 35 for the four days I was out west. It was all I could do to hear R. Australia. (I did log several "new" R. Australia freqs that don't propagate to the east coast.) The

SW7600 really works very well and is definitely a cut above its predecessor, the ICF 2003.

Using the Inline Components AC-1 Micro Module active antenna with the SW7600 provided some good DX opportunities while "on the go." I use this combo while attending my son's baseball games. So far, I've netted five new countries using the 7600/AC-1 combo. Not a bad track record.

One of the things I absolutely hate about going into the field with a receiver (whether it is an infamous ODDX All-Nighter or a DXpedition of my own) is keeping track of all the bits and pieces that you must take along. Over the last several years I have developed

several schemes to ensure that all the right stuff makes the trip out and back.

The most successful scheme centers on using the zip-lock type freezer bags to hold various bits and accessories that must be included for a successful radio outing. Since these bags are very sturdy and have a place on the front to list the contents, it is a simple task to write down a brief inventory of the contents of each bag.

The bags are water-tight (a small packet of Silica-gel can be included just in case) and are

impervious to heavy weather. Bag #1 holds the ECF-SW7600 and a Silica-gel packet. Bag #2 has the AC-1 Micro Module active antenna, coax, 9 VDC battery/power cord, light duty nylon string (for getting the antenna up in a nearby tree) and a packet of Silica-gel. Bag #3 has the JRC multi-time zone clock (it's only about 1/4 inch thick and 1-1/2 by 2-1/2 inches W by L), Micro-cassette recorder, mini-log sheets with two mechanical pencils and (yep, you guessed it) another packet of Silica-gel.

Bag #4 includes spare AA batteries (four for the SW7600, two for the micro-cassette recorder) and one 9 Volt for the AC-1 active antenna (guess who just ran out of Silica-gel packets). Bag #5 contains a small pair of walkman-like mono headphones, extra audio patch cords, AC adaptor for both the SW7600 and the AC-1 (just in case I happen to find an AC current bush or a motel) and the latest copy of *The NASWA Journal*, along with the current *WRTH*.

Contents of each bag are listed on the space provided on the front. This makes packing a simple task, matching the contents to the bag. Lots of extra work and hassle, you say? Well, maybe, but it sure beats streaking out the door at Warp 12 only to find that you have forgotten something important when you get to your destination. Likewise, my method makes keeping track of your radio gear a snap, so you don't leave things at the listening site after you've left.

Have fun, and come back next month for more good stuff. 73s es gud DXing.

mt

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The Sloper:

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Have you ever heard of a "sloper" antenna, and wondered just why it is called by such a name? If you have, you probably correctly guessed that its name comes from the fact that the antenna is not mounted in the traditional horizontal or vertical fashion, but at an angle, so that it actually slopes toward the ground at one end.

Although various antenna designs can be mounted this way, and thus are referred to as a sloper, it is generally either our old friend the halfwave dipole, or an adaptation of the quarterwave groundplane which is so mounted. Usually the reason for mounting it in this manner is that it is much easier to find one moderately-high tie-point (tree, pole, tower, etc.) to put up a shortwave sloper antenna than it is to find the two moderately-high tie-points needed to mount such an antenna horizontally. It is also usually very much easier to find the one moderately-high tie-point needed for the sloper than the one very-high tie-point needed for the halfwave shortwave vertical.

So, if you have the depth in your lot to put up a halfwave dipole or quarterwave antenna, but have only one moderately high tie-point available for attaching it, the sloper may be just the thing for you.

Another advantage of the sloper is that

the length of space needed to put it up is a bit shorter than if the same length antenna is mounted horizontally. The higher the high end of a sloper is mounted, the shorter the run of space beneath the antenna that is needed. So, if you have almost enough space to put up the antenna you want, using a sloper may be a way to get its full length "up and running."

If the features of a sloper appeal to you, you may want to try your hand at building one for your monitoring station. The directions which follow are for the halfwave dipole sloper. But if you utilize a grounded metal tower as the tie-point for the high end of your sloper, it is okay for you to use only one of the dipole elements to make a quarterwave antenna as shown in the inset of Figure 1. The resulting quarterwave antenna will save space as compared to a halfwave; however, you will lose some antenna gain due to using a shorter antenna. But if you don't have room for a full halfwave, the quarterwave may be a good solution for you.

So let's build one:

For a sloper dipole you will need three insulators, an appropriate length of wire for the antenna elements, a coaxial lead-in cable (any good coax is okay for shortwave receiving use) with proper plug to match your

receiver's antenna socket attached, some rope to hang it in the sky with, and some means of sealing the open end of the coaxial cable from the weather.

1. Determine the appropriate length of wire for the antenna from the formula: Length (in feet) = $468/\text{frequency in MHz}$. Thus, if you want to listen primarily to signals in the vicinity of 10 MHz with the antenna, its length will be: $468/10 \text{ MHz} = 46.8 \text{ feet}$ (46 feet, 9.6 inches)
2. Add 12 inches to the length obtained in step 1 above. This extra length is to allow 3 inches for each wire end that must wrap through an insulator. Once you have this total length calculated, divide it in half. For example, the 10 MHz antenna would take $46 \text{ feet } 9.6 \text{ inches} + 12 \text{ inches} = 47 \text{ feet } 9.6 \text{ inches}$. Dividing this in half would give 23 feet 10.8 inches as the length to cut the wire for each half of the antenna.
3. Once you have the two pieces of antenna wire ready, put one end of each wire through a hole in an insulator, and wrap the wire back around itself as shown in Figure 1. Scrape the wire bright where it is wrapped together but don't solder the wire yet.
4. Take the free end of one wire and attach it to the remaining insulator (the center insulator) in the same way as in step 3. Similarly attach the free end of the other wire in the remaining hole in the center insulator.
5. Now measure the overall length of the antenna and adjust it as necessary (by changing the amount of wire pulled through the insulators) to make the length approximately equal to that given by the formula (i.e., 46 feet 9.6 inches for the 10 MHz antenna).
6. Then solder the wires where they twist around each other at the insulators, and also solder the connections to the lead-in cable. Then seal the open end of the cable with coax sealer. Make it watertight.
7. If you live in lightning country, plan for some kind of lightning-induced damage

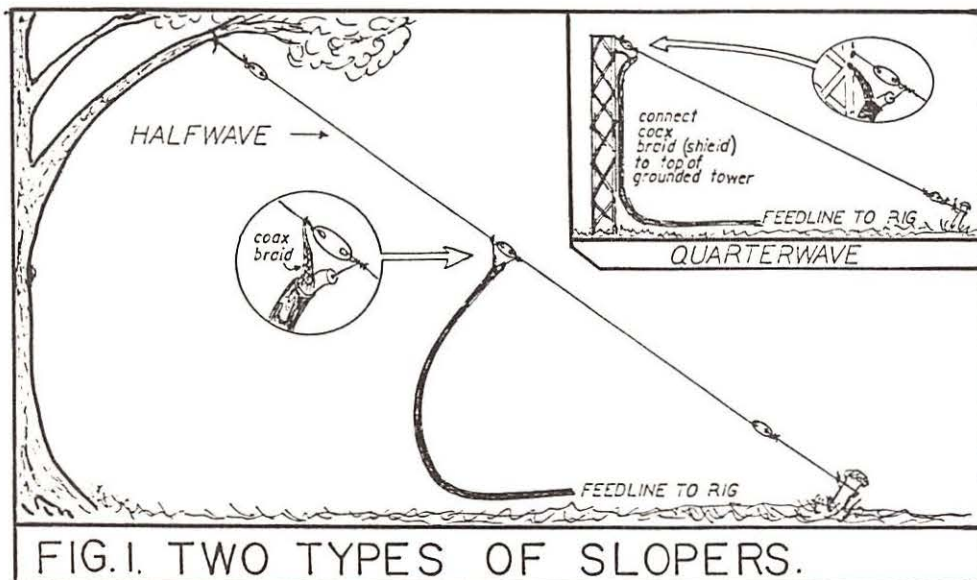


FIG.1. TWO TYPES OF SLOPERS.

protection. The minimum here is to disconnect the antenna when it is not in use (grounding it during periods of non-use is a good idea too) and never operating during weather likely to produce lightning.

8. Add ropes to the end insulators as shown in Figure 1 and put the antenna up. Connect the lead-in cable plug to your receiver and start monitoring.

Antenna Tips from Readers:

Reader Orville Myers of Arlington, Texas, writes that the Super Looper antenna which appeared in this column in April is the best type of loop antenna of the several he has made. Among the tips which Orville sent in is adding a switch to switch out one section of the capacitor. This helps cover the higher frequency end of the loop's range.

He also suggests disconnecting the inside end of the loop from the capacitor and reconnecting it with an alligator clip attached to a length of wire from capacitor. This allows moving the clip to different turns on the loop, which allows the loop to tune higher in frequency (the fewer turns used, the higher the frequency tuned).

Lastly, he tells us that by adding one, two or more capacitors in parallel with the one originally in the loop you can tune the loop lower in frequency, even on down to 170 kHz. He also reports that a Grove MiniTuner-3 adds extra fine-tuning and the Grove Power Ant II adds signal strength. Now that's what I call "souping up" the Super Looper.

Antenna Trivia Call:

Do you have a special bit of trivia concerning antennas? It could be about unusual or weird things which have been utilized as antennas, the strangest or most unusual antenna you ever heard of, interesting uses for antennas, unusual things which have happened to antennas, etc. Send them to me, I'll read them all and report the ones that seem most appropriate for the readers of this column to enjoy. Readers sending in one judged as outstanding will receive a special certificate of appreciation.

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RADIO RIDDLES

Last Month: I asked, "Just what is 'active' about an 'active antenna'?" Does it jump up and down, wiggle or move around a lot? Does an active radio antenna have anything to do with radioactivity?"

Well, an active antenna can sit motionless on your operating table and do its job nicely. The reason that it is called "active" has nothing to do with motion, but that it contains circuit elements which amplify the signals picked up at its input. You might say that it "actively" processes the signals which it picks up by amplifying them and feeding them to its output for use at the receiver. Of course, an active radio antenna has nothing to do with radioactivity. Radioactivity is a matter for nuclear physics, not radio engineering.

This Month: Antennas were once called "aerials." Why were they so-called, and why are they no longer called by this name? For the answer, tune in next month.

Till then, Peace, DX and 73.



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When requesting help from MT columnists, be sure to enclose an SASE (self-addressed, stamped envelope) for their reply.

Q. Is it possible to clip a wire or add a resistor to the insides of a scanner not intended for 800 MHz reception like my BC100XLT in order to hear cellular frequencies? (Eric Roderick, Bloomington, IN)

A. No. Supportive circuitry (RF amplifiers, mixer, diode switching, etc.) is missing in radios which don't come from the factory ready for 800 MHz reception.

Q. Can American model C/Ku band satellite receivers be connected in Europe to a satellite dish for reception? (Peter Hanzal, Largo, FL)

A. Contact the receiver manufacturer to see if the PLL circuitry can be modified for the European satellite band plan as well as converting it to the European PAL decoding scheme. Coax cable connections are probably the same and you can always acquire a power converter for 120 VAC, 60 Hz. In retrospect, maybe you should buy another receiver!

Q. Where can I get a short-wave converter for my car radio? (Ron Inscho, Bucyrus, OH; David Sage, Boston, MA)

A. We are unaware of any domestic manufacturers of mobile shortwave converters at this time. Car radios are now digital and tune in 10 kHz steps; shortwave stations separated by 5 kHz would be skipped.

Q. I occasionally monitor the 108-118 MHz aircraft band and heard our local country western station, but have not heard voice signals from aircraft stations for which I've seen listings. How come? (Robert E. Brock, Phoenix, AZ)

A. 108-118 MHz is non-voice aeronautical VOR, a digital system for supplying directional bearings to aircraft in flight. If you hear a broadcasting station in there it is a spurious signal (image, intermod, etc.) from your receiver.

Q. Can I use my six-foot satellite dish for shortwave reception? (Ron Bruckman, Hampstead, MD)

A. No for several reasons. First, the antenna at the focal point and low noise amplifier (LNA) are specifically designed for 3700-4200 MHz operation. Secondly, the size of the dish cannot focus the long wavelengths of shortwave signals. A UHF dipole, however, located at the focal point of the dish should work well on the higher (800 MHz) scanner frequencies.

Q. How can I ground a plastic-cabinet portable radio? (Eric Forslund, Citrus Heights, CA)

A. Find a metal part which is internally attached to the circuitry like the outer ring of an external antenna jack or earphone jack. You may attach the ground wire to the barrel (outer cylinder) of a mating plug and insert it partially to make contact, or even snip off the

end to prevent it from interrupting the circuit when inserted.

If you are using an external antenna, the ground wire may be attached to the barrel of the plug.

Finding a good ground can be a problem, especially for apartment dwellers. A metal cold water pipe will usually work. If not available, try removing the screw holding the electric wall outlet cover and put a wire under it. If the screw is painted, you must scrape off the underside to assure good contact with the wire.

Remember, a ground will not make signals stronger, but will lessen shock hazard and may reduce electrical line noise interference. All radios and accessories should be commonly tied together to the same ground point by one continuous lead.

Q. Recently I saw a QSL card from Antarctica indicating that the transmitter's power was only 10 KW. Is it possible to hear a station running that low a power from here? (Donald Michael Choleva, Euclid, OH)

A. Absolutely. Hams run maximum powers of only 2 KW and regularly work all points of the globe. I use only 100 watts and a simple dipole, yet regularly talk to Australia.

Factors which control successful reception include time of day (radio wave propagation is influenced by the sun's radiation differently for each frequency band), the types of antennas used for transmission and reception (Do they have gain? Which way are they pointed?), and the operating schedule of the target station.

Q. Can I use my magnetic-mount mobile scanner antenna indoors, or does it need the car body for proper performance? (V.L. Donaldson, Peoria, IL)

A. You need to bring the car inside! Mobile antennas utilize the car body as a reflective -- and conductive -- part of the antenna. Without it, you have only half an antenna. It is possible, however, to simulate the car body.

For example, on a trip, I will often bring my Grove ANT4 mag-mount antenna inside the motel room and stick it on the top of the air conditioner; the metallic mass below helps reception. A metal filing cabinet or TV enclosure will also work well.

The metal doesn't have to be attractive to

Bob's Tip of the Month:

TURBO SPEED FOR THE PRO34

For our technically-inclined readers who are looking for an evening project -- and a way to void your warranty at the same time -- the scan/search speed of the Realistic PRO34 hand-held scanner can be boosted from its normal 8 to a whopping 40 channels per second!

The secret, according to Tom Merritt, WB4WXY, of Rural Hall, North Carolina, is to replace CX1, a 2 MHz time base ceramic resonator, with one of higher frequency, such as the 7.37 MHz unit used in the now-discontinued PRO2004 and PRO2005

scanners, available from Radio Shack service centers.

After the substitution, the scanner really zips along, according to Tom, with no loss in sensitivity, but the keyboard beep becomes a "tick" and scan delay is reduced to about one second.

The procedure involves unsoldering of some leads and shielding to access the old ceramic resonator, a white cube. The substitute has the same lead spacing but is slightly smaller.

Questions or tips sent to "Ask Bob," c/o MT, are printed in this column as space permits. If you desire a reply by return mail, you must enclose a self-addressed, stamped envelope.

the magnet; a metal folding table works quite well with the mag-mount simply sitting in the center. In a pinch, try a layer of aluminum foil on a wooden tabletop; it may be covered with a tablecloth, mag-mount antenna set in the middle.

If no metallic ground plane is available, you can attach a series of wires to the base of the antenna, radiating outward, two for each band. For example, 155 and 450 MHz bands are handled well by two 18" wires, physically attached to the base, and running in opposite directions from each other.

For low band (30-50 MHz), add two wires at least four feet long (ideally 5-1/2 feet), and for 800 MHz, about 3 inches.

Q. What is "satellite radio"? Is it anything like satellite TV? (Hugh McGibboney, Grand Prairie, TX)

A. Communications and broadcast satellites carry far more than pictures; they can be used to relay globally any form of electronic communication. International broadcasters have discovered satellites, as have domestic broadcasters of background music, talk radio, sports, stock reports and many other targeted transmissions.

Q. My shortwave radio has a jack to accommodate an external dipole antenna; is there a preference as to which side of an antenna goes to the coax center conductor and which to the shield? Can I simply tie both sides together and insert them into the center hole? (Eric Forslund, Citrus Heights, CA)

A. It makes no difference whatsoever which side of the dipole is attached to the center conductor and which to the shield. Even if the antenna is off-center-fed like a Windom, it makes no difference, but we often attach the longer wire to the center conductor because intuitively we think it should capture more signal. It doesn't; the total antenna senses the signal.

Yes, you may twist the two ends together and plug them into the center hole of the jack, but this defeats the purpose of coax for impedance matching and shielding against electrical noise. Similarly, even using parallel conductors (twin lead), you no longer have the benefit of a balanced line for impedance matching and noise-pickup resistance. You might as well use a single wire feed.

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Q. I know that it is unlawful to listen to mobile telephones, but how about those point-to-point microwave towers on the telephone company buildings?

A. The Electronic Communications Privacy Act of 1986 does not limit privacy to mobile telephones; all forms of telephone communications are covered. At this writing, only cordless phones are exempted from privacy protection by law, and they may be covered if Senator Robert Kastenmeier holds his anticipated hearings shortly.

As of this writing, there has never been an ECPA prosecution of anyone who has listened into a radiotelephone conversation.

Q. On my Bearcat BC200XLT scanner I hear cellular conversations in the 900 MHz range; aren't cellular transmissions in the deleted 870-890 MHz band? (Mike Watson, Brooklyn, NY)

A. Yes, they are, but the circuitry of your scanner produces an "image" of that band

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21.4 MHz higher, repeating the stations heard in the deleted cellular band. This technique of monitoring cellular conversations is commonly used by scanner owners who are reluctant to restore cellular coverage to their scanners and is described in the information sheet sent by Grove Enterprises with the BC200XLTs that they sell.

Last month Peter Dougan of Clearwater, Ontario, asked how to defeat the noise transmitted by the Ontario Provincial Police to thwart scanner monitoring.

We called the OPP and confirmed that "cloaking" is now being used by southern provincial OPP metro divisions to mask sensitive transmissions.

MT reader R.E. Christian suggests that Peter switch to a BC760XLT with tone board installed and encoded with the proper CTCSS (PL) tone used by the OPP's own receivers (which he will have to determine).

Lakeshore Electronics (3371 Lakeshore Blvd West, Etobicoke, ONT M8W 1N1; [416]259-7135) wrote to say they can eliminate both the OPP and Metro Police interference signal on the BC590XLT and 760XLTs for \$125. (Possibly the same fix as suggested by Christian.)

LETTERS

continued from page 3

he's got the makings of a "Scanner Buyer's Guide" already in the word processor, if anyone is interested. Let him know with a note to the Brasstown address.

We wanted to take a moment to offer our congratulations to Bob Padula and all the members of the Australian Radio DX Club on their 25th anniversary. Their monthly publication, *Australian DX News*, is known around the world for its accuracy. Congratulations, folks!

Speaking of clubs, we've gotten a few letters from readers who are asking for more information about the IRCA -- the folk who are co-sponsoring the *Monitoring Times* convention in Knoxville. IRCA stands for "International Radio Club of America" and is a mediumwave-only club. Membership is open to anyone interested in DXing the roughly 540 to 1600+ AM broadcast band. For more information, send a self addressed, stamped envelope to 154 Old Post Road North, Croton-on-Hudson, NY 10520.

Finally, wrapping up our club notes, we also offer congratulations on North East Scanning News' 4th annual picnic. Rumor has it that this year's even was even better than last! Those interested in getting a sample NESN bulletin should send \$2.00 to Les

Mattson, 212 West Broad Street, Paulsboro, New Jersey 08066.

A couple of years ago we ran an article by a Soviet DXer named Igor Sannikov. At the time, the idea of having a Soviet write about DXing in the Soviet Union was, well, revolutionary. While *MT* clearly scooped the industry, we did wonder who this fellow was and why he seemed willing and able to risk all on behalf of DXing by supplying us with an article -- for pay.

After the article ran, we received a number of letters from people who wanted to know more about Mr. Sannikov. At least one suggested that Sannikov was not entirely on the "up and up," perhaps a piece of *MT* fiction or a KGB plant.

We dutifully passed along all of your letters, however, but up until now, were not aware of what kind of response Mr. Sannikov gave to your mail. Now comes a letter from Reijo Siivonen of Rauma, Finland.

"By this letter," writes Reijo, "I want to inform you of the result. No answer was received. Perhaps Igor Sannikov is only a 'nickname.'"

Reijo also points out that the name Igor Sannikov also appears as a correspondent in the magazine *World Broadcast News*, but that a letter he wrote to that publication's editorial office about Mr. Sannikov went unanswered.

Our experience parallels that of our Finnish reader -- to an extent. We can assure you that we did correspond with Mr. Sannikov via an address in Kirov in the Soviet Union. Beyond that, we know little else about him.

We get word from Robert Zilmer of Rio Rancho, New Mexico, that well-known DXer Ralph Munster has died. Munster, who was 77, was a professor emeritus at Georgia State University and top-notch SWL. Says Zilmer, "He was my SW monitor friend. We worked together for many years, he in Decatur and me in Rio Rancho. I never met him personally, but will miss him a lot."

"I believe that I read in *Monitoring Times* some time ago that AFRTS [Armed Forces Radio and Television Service] had 'demised,'" says Joe O'Brien of West Cork, Ireland. "Well," continues Joe, "what a pleasant surprise it was to pick up AFRTS on 9330 kHz (SSB) throughout the day."

Thanks, Joe. We were aware that this "feeder" was operating from Barford in the United Kingdom but because of its irregular schedule, decided not to list it. Those who want to try for this 4 kW signal should look around -- *Passport to World Band Radio* lists it on 9334.4 lower sideband.

"What's going on with WRNO?" asks Mark Henning of Hamburg, New York. "They leave the air very early in the afternoon, usually at 1700 UTC for 'transmitter adjustment purposes' or to conclude their broadcast day."

"Are they going to a new schedule, do they have transmitter problems, or are they just cutting back on their hours of operation?"

Tom Marcotte of Lafayette, Louisiana, checks in with a 26450 kHz logging of a sports call-in show on WLW-AM in Cincinnati, Ohio. "How's that for daytime Broadcast Band DX?" he asks proudly.

Jonathan Guzie writes to say "thank you for the excellent job done by your magazine. I have subscribed since I got my first issue as a gift at Christmas of 1987. Each issue is saved and read over and over again. There is a wealth of knowledge to be gained in the pages each month." Thanks, Jonathan.

Bob Holmes says that he "really likes to see fellow readers' monitoring post pin ups" but would like to see us expand on the idea.

"In addition to the 'land based' pin-ups, you should invite readers to send in pictures of their mobile set ups. Seeing that space is kind of tight in today's vehicles, we could get

MONITORING POST PIN-UP



Richard Philips of Fenwick, Ontario, Canada, says, "Please put the 'great debate' concerning CW and amateur radio to bed; or watch the 'Great White North' because, as of September(!) we'll have a VHF-UHF 'no-code' license!"

Richard's rigs are a Tentec Century 21, and Yaesu FT102 (pictured); he also uses a Racal RA-17, Radio Shack DX-400, and Sony ICF-2001. Admits Richard, "I'm a CW freak and belong to the American 'CFO' highspeed club. Sorry folks!"

ideas on mounting locations, and so forth from other readers."

Here's your invitation, folks! Anyone out there have some pictures of their mobile radio set-ups? Send them in to our pin-up person, Rachel Baughn, in care of Box 98, Brasstown, NC 28902.

"Got the guts to quote this?" asks our own Kannon Shanmugam. "A Bronx cheer for July's 'She Married a Technoid,' a worthy sequel to last year's classic, 'The Last Radio Station on Earth.'" Kannon says that by printing the article we have "managed to propagate the myth that all shortwave listeners are technoids, with no common sense...or social skills." Oh, Kannon. What are we going to do with you?

Doug Merkel says that he is a newcomer to shortwave listening, having owned his Realistic DX-440 "for just over a year."

Doug says that he enjoys collecting QSL cards "and would like to QSL stations like

Radio Moscow and Radio Havana" but is reluctant. "I feel strange about giving my name and address to those countries. When I hear the propaganda they pour out of their state-controlled media, I can only imagine the groups/organizations they are affiliated with. Who knows who they might pass out [my name and address] to?"

That's a decision you'll have to make on your own, Doug. No one will come knocking at your door; however, I will warn you that it's possible that you'll receive unsolicited literature from the stations along with your QSL. I might also mention that you may continue to receive literature from these stations for years. That bothers some people; some people don't mind it. Again, it's a personal choice.

Finally, before we go, we promised to mention that 25th annual Platinum Coast Hamfest on September 8 and 9 in Melbourne, Florida. If you're a ham and live in the area, the club repeater is on 146.85/146.25. Otherwise, if you need more information,

write Gerry Wentz at P.O. Box 1004, Melbourne, Florida 32902-1004.

And...you can get a copy of the 1990 version of the European DX Club Member list for U.S.\$1.00. The 16 page booklet gives details of each of the EDXC's member and observer clubs including their publications, specialties, name, address and membership information. Many leading DXers take membership in at least one "foreign" club in an effort to pick up DX leads.

The list is available from P.O. Box 4, St. Ives, Huntingdon, Cambs PE17 4FE, England. Tell 'em *Monitoring Times* sent you!

We'd like to hear your opinions and comments on the world of radio. Please understand that personal replies are not always possible.

Letters should be addressed to Letters to the Editor, Monitoring Times, P.O. Box 98, Brasstown, NC 28902. Please include your name and address; we will withhold your name at your request.

CONVENTION CALENDAR

Date	Location	Club/Contact Person			
Aug 3-5	OK City, OK	Oklahoma State Conv/ Frank Tassone AA5GI 3531 Wynn Circle, Edmond, OK 73013	Sep 1-2	Alamogordo, NM	Alamogordo ARC/ June Richmond K5BHE P.O. Box 276, Alamogordo, NM 88310
Aug 3-5	Austin, TX	West Gulf Div Conv/ Joe Makeever W5EBJ 8609 Tallwood Dr, Austin, TX 78759	Sep 1-2	Shelby, NC	Shelby ARC/ Dale Mauney WA4BBN 1158 E. Marion St., Shelby, NC 28150
Aug 4-5	Jacksonville, FL	Florida State Conv/ Wayne Oehlman WB3DBE PO Box 23375, Jacksonville, FL 32241	Sep 8	Uniontown, PA	Uniontown AC Gabfest/ John Cermak WB3DOD 36 Steel St, Republic, PA 15475
Aug 5	Sugar Grove, IL	Talk-In 146.16/76 MHz, W4IZ Fox River Radio League/ Phil Fors N9FXQ 104 May St, West Chicago, IL 60185	Sep 8	Windsor, ME	Rptrs: 147.045, 255.145, 170.443.750 Augusta ARA/ Joseph Kozak WA1N P.O. Box 358, Manchester, ME 04351
Aug 5	Crooked Lake, IN	Land of Lakes Hamfest/ Dorris Smith WB9GPC R2 Box 30, Angola, IN 46703	Sep 8-9	Melbourne, FL	Platinum Coast ARS/ Gerry Wentz KC4EHT P.O. Box 1004, Melbourne, FL 32902
Aug 5	Greenfield, IN	Greenfield ARA/ Keith Dalrymple PO Box 7033, Greenfield, IN 46140	Sep 9	Joliet, IL	Talk-in 146.85/25 Club Rptr Bolingbrook ARC/ Edwin Weinstein WD9AYR 7511 Walnut Ave, Woodridge, IL 60517
Aug 5	Berryville, VA	Shenandoah Valley ARC/ John Kanode N4MM RFD 1 Box 73A, Boyce, VA 22620	Sep 9	Butler, PA	Butler Co ARS/ Gerald Wetzel W3DMB 784 Mercer Rd, Butler, PA 16001
Aug 5	Randolph, OH	Portage ARC/ Joanne Solak KJ3O 9971 Diagonal Rd, Mantua, OH 44255	Sep 9	S Dartmouth, MA	Southeastern ARA/ Bill Field WA1FYF 774 County St, New Bedford, MA 02740
Aug 11	Bend, OR	Central OR ARC/ Cliff Fleury AJ7Y 64174 Tumaio Rim Dr, Bend, OR 97701	Sep 9	Findlay, OH	Findlay RC/ Ronald Griffin 230 North Main, Findlay, Ohio 45840
Aug 11	Springfield, MO	SW Missouri ARC/ Linda Baxter KA0NXI 2616 W Woodlawn, Springfield, MO 65803	Sep 15	Goshen, NY	Orange Co ARC/ Kevin Conero 100 Walkill Ave, Montgomery, NY 12549
Aug 11-12	High Point, NC	High Point ARC/ Mark McMahan KB4MFP 122 Avondale St, High Point, NC 27260	Sep 15	Wichita Falls, TX	Wichita ARS/ Valerie Thomerson 2202 Taylor, Wichita Falls, TX 76309
Aug 12	Warrington, PA	Mid-Atlantic ARC/ Bob Josuweit WA3PZO 9 Derwen Dr, Havertown, PA 19083	Sep 15-16	Peoria, IL	IL State Conv/ Richard Waldmere KA9HPT 2015 Alhambra Ct, Pekin, IL 61554
Aug 12	Santa Barbara, CA	Santa Barbara ARC/ Don Fuller KA6KGF 7294 Georgetown Rd, Goleta, CA 93117	Sep 15-16	Va Beach, VA	Roanoke Div Conv/ Art Thiemens AA4AT 2836 Greenwood Rd, Chesapeake, VA 23321
Aug 12	Georgetown, KY	Bluegrass ARS/ Bill DeVore N4DIT 112 Brigadoon Pkwy, Lexington, KY 40517	Sep 15-16	Va Beach, VA	ANARCON '90/ Box 9645, Norfolk, VA 23505/804-499-1191 or 877-4969
Aug 17-19	Arlington Hts, IL	DECAComANIA (radio promotional items club) For full info, SASE to Mark Strickert 3852 N Oconto Ave, Chicago, IL 60634	Sep 16	Canfield, OH	L'Anse Creuse ARC/ Ralph Wilcox KA8YOJ 39610 Chart, Mt. Clemes, MI 48045-2154
Aug 18	Victoria, TX	Victoria ARC/ Joanna Howard N5NEM 516 McCormick Dr, Victoria, TX 77904	Sep 16	Cincinnati, OH	20/9 ARC/ Richards Slutz KB8GAE 5118 Salem Unity Rd, Salem, OH 44460
Aug 18-19	Cedar Rapids, IA	Cedar Valley ARC/ Clifford Goldsberry KA0QEA 2926 Schaeffer Dr SW, Cedar Rapids, IA 52404	Sep 21-23	Milton-Freewater, OR	Greater Cincinnati ARA, John WA8STX 10615 Thornview Dr, Cincinnati, OH 45241
Aug 18-19	Huntsville, AL	Alabama State Conv/ Don Tunstall WB4HOK 1215 Dale Dr SE, Huntsville, AL 35801	Sep 22-23	York, PA	OR Walla Walla Valley ARC/ Jack Babbitt WA5ZAY 1401 Pleasant, Walla Walla, WA 99362
Aug 18-19	Hot Springs, SD	South Dakota State Conv/ Lon Seaboldt WS0V RR1 Box 100-A-2, Hot Springs, SD 57747	Sep 22-23	York, PA	York Amateur Radio Clubs/ Ray Shaub W3AXC 2331 Locust Rd, Dover, PA 17315
Aug 19	Dover, DE	Kent Co ARC/ Carl Shulak N53G PO Box 322, Dover, DE 19903	Sep 22-23	Wichita, KS	Kansas State Conv/ Vern Heinsohn WA0ZWW 950 Back Bay Blvd, Wichita, KS 67203
Aug 19	Quincy, IL	Western Illinois ARC/ Michael Nowack NA9Q 2011 N Sheridan Dr, Quincy, IL 62301	Sep 22-23	Mobile, AL	Mobile ARC/ MARC, P.O.Box 9315, Mobile, AL 36691-0315; Info: Ed KC4BRI 649-4597
Aug 19	Warren, OH	Warren ARA/ Frank Fitzhugh KD8KJ 3681 Hightree Ave, Warren, OH 44484	Sep 22-24	Gaylord, MI	Michigan State Conv/ Don Roberts K4IHU 8074 Washington St., Vanderbilt, MI 49795
Aug 23-26	San Diego, CA	SW Division Conv/ Sybil Albright W6GIC 8658 Encino Ave, San Diego, CA 92123	Sep 23	Cleveland, OH	Cleveland Hamfest Assoc/ Glenn Williams AF8C 513 Kenilworth Rd, Bay Village, OH 44140
Aug 25-26	Madison, GA	Confed Signal Corps Inc/ Roy Jordan WB4ILR 1146 Shoreham Drive, College Park, GA 30349	Sep 23	Danbury, CT	Candlewood ARA/ Raoul Elton N12B 60 Padanaram Rd, #18, Danbury, CT 06811
Aug 26	Mullica Hill, NJ	Gloucester Co ARC/ Frank Malinowski 7 Aspen Place, Bellmawr, NJ 08031	Sep 23	Queens, NY	Hall of Science ARC/ Stephen Greenbaum 85-10-34th Ave, Jackson Heights, NY 11372
Aug 26	Marysville, OH	Union ARC/ Gene Kirby W8BJN 13613 US 36, Marysville, OH 43040	Sep 28-30	Fargo, ND	Talk-in 144.300 simplex; 223.6, 445.225 rptr Call 718-898-5599 at night for more info Dakota Div Conv/ Gerald Parker K0GPX 3420 Birdie St NE, Fargo, ND 58102

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Two Corrections from July:

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For Sale: SONY CRF-1, SONY 6800w and ZENITH Transoceanic 1955(?). All may be seen at MT Convention. Write to: Hugh Waters, Rt 2 Box 90, Pembroke, GA 31321.

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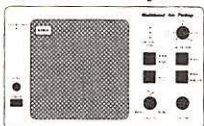
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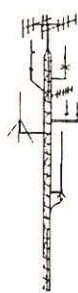


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The ICOM Delay -- Some Speculation

As of this writing, ICOM still has not revealed the cause of the indefinite postponement of their prematurely announced models R1, R100 and R72 scanning receivers. *MT* speculates that the delay is a result of Uniden's attempts to control the scanning industry with its aggressive patent protection policy following their acquisition of Regency Electronics.

Since the new ICOM products have been available for some time in Europe, there appears to be nothing wrong with the basic designs, and sales prospects in this country have been very favorable. A spokesman for Uniden refused to comment on any pending litigation against ICOM.

Another prominent scanner manufacturer, AOR, after being targeted by Uniden for a suit, has countersued Uniden for attempting to prevent competition, citing invalid patents. Such tactics may be fun and games to the industrialists, but they keep the courts tied up for years, expenses being charged to us consumers as overhead.

One key factor accounting for the general unavailability of receiver products from ICOM, Kenwood, Yaesu, JRC and other Japanese manufacturers may well be the forthcoming Economic Reunification of Europe (1992). With trade barriers, tariffs and bureaucratic

inefficiencies gone, the Japanese will find the European market wide open.

Since Japanese factories cannot even now meet the demand of both U.S. and European consumers, they may now be rationing their shipments to the U.S. in order to build a market share in Europe. Experts say it will be at least a year before the U.S. sees any relief from the receiver/scanner drought as Japan scales up their factory production.

Shrewdly, the Japanese may wait for large backorders so that they can purchase components at the largest volume (lowest cost), borrow for the shortest time (lowest interest) and ship to a waiting market (minimum inventory).

Rather than maintaining a constant flow, production lines frequently shift gears, switching back and forth among various products, causing a substantial backlog of orders for popular items not presently on line.

Whatever the cause -- or causes -- it must work or the Japanese would not continue to lead the world in consumer electronics.

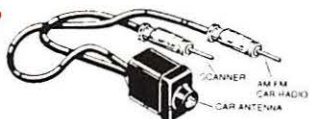
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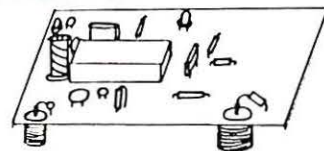
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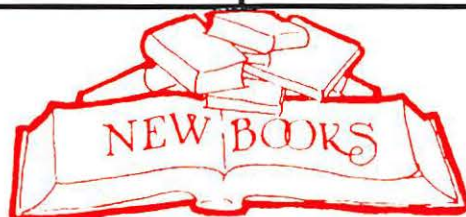
Well over 100 of those federal agencies, from the Central Intelligence Agency to the National Security Agency, from the FBI to the Border Patrol, are listed. And the book isn't just for scanner listeners; shortwave frequencies are listed as well, including the elusive Mystic Star network.

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